A Parrallel of the Five Orders according to three Different Authors whereby their Various Proportions are seen by Inspection

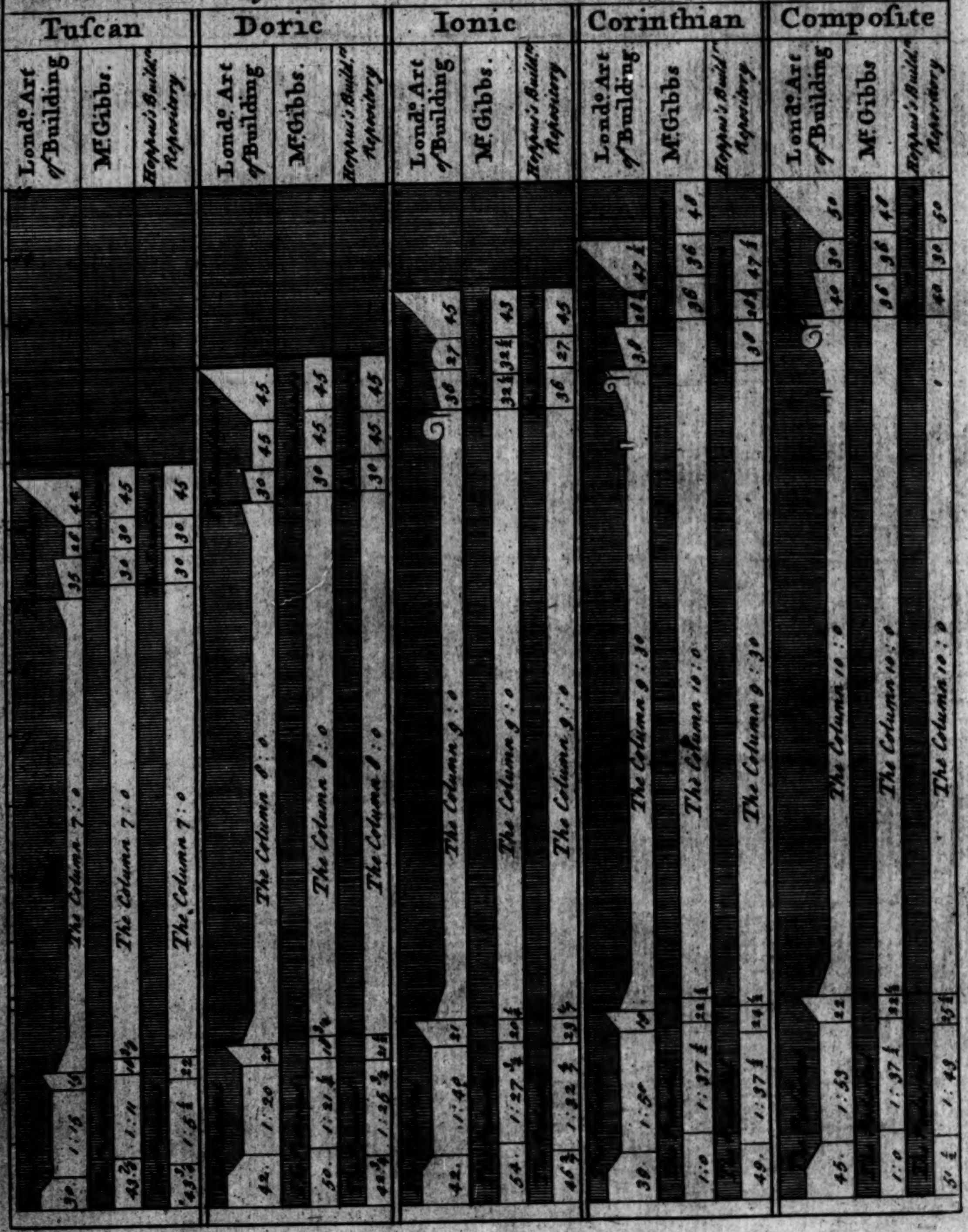
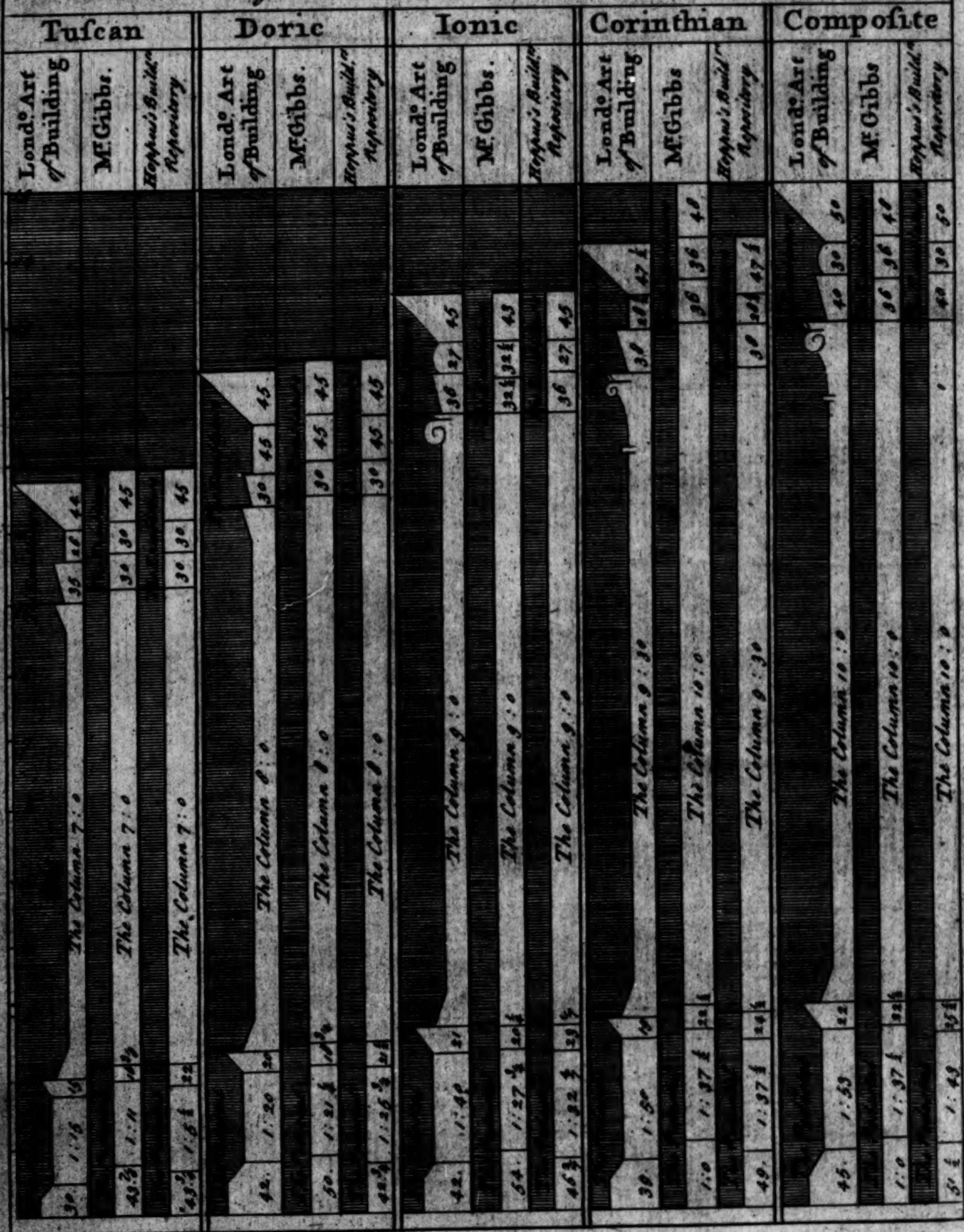


Plate A.

A Parrallel of the Five Orders according to three Different Authors whereby their Various Proportions are seen by Inspection



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Palladio Londinenſis:

OR,

The LONDON Art of Building.

IN THREE PARTS.

I. Containing a *Demonſtration* of all the Geometrical Problems which are neceſſary to deſcribe SQUARES, CIRCLES, OVALS, POLYGONS, ARCHES, and GROINS.
The moſt approved Methods for Menſuration of *Superficies*, and *Solids*, applied to the Meaſurement of all Sorts of Artificers Works concern'd in BUILDING.
The Prices of the *Labour* and *Materials*, of the ſeveral kinds of Works performed by DIGGERS, BRICKLAYERS, MASONS, CARPENTERS, JOINERS, SMITHS, PLAISTERERS, PLUMBERS, GLASIERS, PAINTERS, and PAVIOURS; with Directions for making an *Eſtimate* of the Expence of any Fabric, great or ſmall.
The Prices of all Sorts of Iron-work: *viz. Nails*, and what each Sort ought to weigh. The Prices of *Locks*, *Bolts*, *Hinges*, *Latches*, &c. *Axes*, *Hammers*, *Saws*, *Chizzels*, *Augres*, &c.

II. Containing plain and eaſy Directions for the Conſtruction of the FIVE ORDERS OF ARCHITECTURE, with their ſeveral *Pedeſtals*, *Columns*, and *Entablatures*, accurately deſcribed; and a *Parallel* drawn between *this* and Mr. GIBBS's Method, and *that* of the BUILDER's REPOSITORY; ſhewing how the Orders are to be uſed over each other; with their *Intercolumniations*, *&c.*
A large Variety of *Frontiſpieces* and *Doors*, ſuited to each Order; the Proportion of *Windows*, *Piers* for *Gates*, *Obeliſks*, *Block Cornices*, with the Proportion of *Rooms*, *Cieling-Pieces*, *Frets*, &c.
An eaſy and entirely New Method of finding the exact Module or *Diameter* for the erecting Columns or Pilaſters THREE ſeveral Ways in a juſt Proportion. 1. *Arithmetically*. 2. *Geometrically*, by Scale and Compaſs. 3. *Inſpectionally*, by a Table; which ſhews, in proportion to *any* Height given, the exact *Diameter*; alſo how to calculate the *Diameter* of the Orders, according to the Proportions laid down by Mr. GIBBS, or any other Author.
And alſo the Method of Reducing any Module or *Diameter* (from 6 to 24 Inches) into *Feet* and *Inches*, by a New Inſpectional Table; whereby the Trouble of dividing a Module into *Minutes* is avoided, and the whole performed by the common *two Foot Rule*.

III. Copiouſly treating of the ſeveral kinds of *Stair-Caſes*; the various Forms of their twiſted *Rails*: Alſo the beſt Rules, with Variety of Examples for Forming, Framing, and Truſſing all manner of ROOFS for Buildings, public or private, though the PLAN be *ſquare* or *bevel*.
With a Collection of the *Ground Rules* neceſſary to be obſerved in Architecture and Building.

The Whole illuſtrated with Fifty-two COPPER PLATES.

To which is annexed,

The BUILDER's DICTIONARY.

By *WILLIAM SALMON*.

The FOURTH EDITION.
With great Alterations and Improvements, By E. HOPPUS, Surveyor to the *Corporation* of the *London Aſſurance*.

LONDON: Printed for S. BIRT, T. LONGMAN, C. HITCH, J. OSWALD, E. WICKSTEED, J. WARD, and W. JOHNSTON. 1752.

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THE

PREFACE.

I *SHALL not expatiate on the Uſefulneſs and Excellency of the Art of Architecture, which is too well known to require any Encomiums; but rather chuſe to employ the few Pages left me to inform the Reader, in the firſt place, with the Motives which induced me to publiſh this Treatiſe; and then with the Method I have taken in the Performance of it.*

The principal Motive was my Deſire to improve the young Practitioners in this Art, who, for the moſt Part, are groſly ignorant of the true Proportion, which is the Foundation and very Soul of Architecture.

The next was the Deficiency in all the Treatiſes of Architecture written by Vitruvius, Palladio, Schamozzi, Serlio, Vignola, *and many other celebrated Architects.*

For notwithſtanding they contain many excellent Rules, yet, upon mature Conſideration, it will be found, that ſome things very material are ſtill wanting, in order for the rendering the Study and Practice of Architecture plain and eaſy to Perſons of common Capacities.

To ſet this in a ſtronger Light, it will be proper to enquire into the following Particulars.

I. *What is neceſſary to be known by every one who deſires to draw, or work, any of the* Five Orders *of Architecture, according to true Proportion, to any Height required.*

II. *What the Rules are, already given by Authors, for the obtaining this Knowledge.*

In anſwer to the firſt; the Knowledge abſolutely neceſſary to be obtained by every one, who deſires either to draw, or work, any of the Five Orders *of Architecture according to true Proportion to any Height required, is,*

The underſtanding perfectly well how to find an exact Diameter, in Proportion to the limited Height he is obliged to draw, or work to, in any of the following Caſes; viz.

1. *To the Column alone: Or,* 2. *To the Column with its Entablature: Or,* 3. *When the Column, with its Entablature, is erected on a Pedeſtal: Or,* 4. *To the Column and Pedeſtal only, without its Entablature.*

All this Variety of Caſes does often occur in Practice, and therefore is neceſſary to be known; becauſe every one of theſe Caſes requires a different Diameter to the ſame Height, in proportion thereto: So that it is as impoſſible for any one that is ignorant in this Point, to draw, or erect, either Column or Pilaſter in true Proportion, as it is for any one to erect a Houſe, to ſuch a Length, Breadth, and Height, without making uſe of ſome ſort of Meaſure.

I ſhall now ſhew, in anſwer to the ſecond Query, what are the Rules already given, by Authors, for the obtaining of this Knowledge, ſo abſolutely eſſential *to be known.*

It would indeed be too tedious to give a particular Account of all the Authors who have treated on this Subject; I ſhall therefore but briefly touch on ſome of them, tho' withal the moſt celebrated.

In the ſeveral Treatiſes written by Palladio, Scamozzi, Serlio, Vignola, Le Clerc, *and* Evelyn, *there is not a Word mentioned for the inſtructing a young Architect how to module, or find the Diameter of an* Order; *which, to me is vaſtly ſurprizing, That in a point ſo very neceſſary, which they muſt moſt certainly know this to be, they ſhould be wholly ſilent: Nor can I account for it, unleſs it were deſignedly to ſhut the Eyes of the Ignorant, that they might ſtill remain ſo.*

The beſt Rules that ever I ſaw for this Purpoſe, are thoſe given by Mr. William Halfpenny, *and Mr.* Langley; *and they are theſe that follow.*

Mr. Halfpenny, *in his* Art of Sound Building, *gives theſe Rules:*

When any Height is determined for a Column, with its Entablature, what muſt be the Diameter in proportion to that Height?

" 1. *Of the* Tuſcan Order, *according to* Palladio, *when the whole*
" *Height is given, you muſt divide it into* 35 *equal Parts, and four of*
" *thoſe Parts muſt be the Diameter of the Column; but if it ſtands on*
" *a Sub-Plinth, you muſt divide the given Height into* 39 *equal Parts,*
" *and four of thoſe Parts muſt be the Diameter of the Column.*

" 2. *Of the* Doric Order; *divide the given Height into* 10 *equal*
" *Parts, and take one for the Diameter of the Column; but if it*
" *ſtands on a Pedeſtal, the given Height muſt be divided into* 74 *equal*
" *Parts, and ſix of theſe Parts muſt be the Diameter of the Column.*

" 3. *Of the* Ionic Order; *Divide the given Height into* 65 *equal*
" *Parts, and take ſix for the Diameter of the Column; but if it*
" *ſtands on a Pedeſtal, you muſt divide the given Height into* 81 *equal*
" *Parts, and take ſix for the Diameter of the Column.*

" 4. *Of*

“ 4. *Of the* Corinthian Order; *Divide the given Height into* 85 ½
“ *equal Parts, and* 7 ½ *of theſe Parts muſt be the Diameter of the Column.*

“ 5. *Of the* Compoſite Order; *Divide the given Height into* 12
“ *equal Parts, and take one for the Diameter of the Column; but if*
“ *it ſtands on a Pedeſtal, the given Height muſt be divided into* 46
“ *equal Parts, and three muſt be the Diameter of the Column.*”

Theſe are all the Rules and Caſes delivered by Mr. Halfpenny, *for finding a proportional Diameter to any Height required. And here it is to be obſerved, that he gives Rules for finding the Diameters but of two of theſe four Caſes mentioned before, which are ſo neceſſary to be known.*

Mr. Langley, *in his* Builder's Cheſt-Book, *gives this Rule;*
“ *Your Order being agreed on, you muſt Account how many Minutes*
“ *are contained in the Height of the Column, and its Entablature,*
“ *and then divide the Height of the Room,* &c. *into as many equal*
“ *Parts as there are Minutes in the Height of your Order, and tak-*
“ *ing* 60 *of thoſe Parts,* That *ſhall be the Diameter of your Column;*
“ *and Module to work by.*”

Here it is to be obſerved that he takes notice of, and gives Rules for, but one of thoſe four Caſes beforementioned.

Now theſe are the beſt, and all the Rules I ever met with for finding the Diameter of a Column, or Module to work by: And even both theſe are very troubleſome and intricate, if not obſcure, eſpecially to ſuch as are unacquainted with the Mathematicks.

The Matter ſtanding thus, I ſhall in the next Place proceed to ſupply this Deficiency, and remove the intricacy in which theſe Authors have left us.

In which obſerve:

That the Method I advance in this Treatiſe is entirely new; whereby the Module, or Diameter, in proportion to any given Height, is found three Ways: Firſt, *by Arithmetical Calculation:* Secondly, *Geometrically by Scale and Compaſs; and,* Thirdly, *by an Inſpectional plain Table.*

I have given in Chap. VIII. *Part the Second, a Method of finding the exact Diameter by Arithmetic in any of the Caſes beforementioned; and for the effecting of this, you will find a Table, containing ſuch Heights, in all the Caſes, that require a Foot Diameter, in proportion thereunto: So that when you have occaſion to calculate a Diameter to a limited Height in any Caſe, have Recourſe to the Table for the Caſe you require the Diameter to be calculated to; and taking from thence the Height, there ſet down (in the Manner there taught,) the Diameter in proportion to that Height is* 12 *Inches; therefore ſay, by the* Rule of Three.

If ſuch a Height requires 12 Inches, what will ſuch a Height require?

And one ſingle Operation will give you the Diameter ſought. See the Examples in the Chapter above-mentioned.

The ſecond Way of doing this is Geometrically by Scale and Compaſs. See Plate X. Though this Scale is chiefly deſigned for drawing, yet it may alſo be applied to Practice, and thereby become of univerſal Uſe: For this Scale ſhews, by Inſpection, and by the Help of a Square, and a Pair of Compaſſes, the exact Diameter in proportion to any Height of Columns and Pilaſters, and in all the Variety of Caſes beforementioned; and that with leſs Time and Trouble than the former.

This Method is much eaſier than by Arithmetic; becauſe any Perſon may make uſe of this way, who can but read the Conſtruction thereof in Chap. IX. Part the Second; altho' they underſtand nothing of Arithmetic.

This Scale is of excellent Uſe in delineating Architecture in true Proportion on Paper, or the like: For by ſetting the given Height, or that you intend your Draught ſhall be of, upon the Scale; it at once gives you the Diameter in proportion to that Height.

This Method is leſs troubleſome than either of the former, and anſwers in all the Variety of Caſes before mentioned.

The third *Method is by an Inſpectional Plain Table, Plate XIII, which ſhews by Inſpection, not only the exact Diameter in Inches, but alſo the ſixteenth Part of an Inch.*

I ſhall therefore ſubmit it to the Judgment of any impartial Perſon, whether any or all theſe Ways are not plainer and eaſier to be underſtood, and alſo more expeditious, than any of thoſe Rules delivered by Mr. Halfpenny, Langley, *or any other Author whatſoever.*

I ſhould not have introduced the firſt *Part of this Treatiſe, had it not been with a View of making it of general Uſe to all Sorts of Perſons concerned in Building.*

Architecture is an Art founded on the Principles of Geometry, and therefore it is highly neceſſary that every one, who would attain to any Perfection in it, ſhould firſt learn Geometry: But as it is reaſonably to be expected, that many Perſons, in whoſe Hands this Treatiſe may come, may not be thus qualified; therefore I have for the Help of ſuch, in this firſt Part, collected the moſt uſeful Problems in Geometry, neceſſary to be learned, from Authors of known Reputation, viz. Mr. Le Clerc, Mandey, Hawney. *And alſo the Menſuration of Superficies and Solids, with ſome Improvements for the more eaſy underſtanding of them. See Plate* I, II, III.

You have here alſo Directions for meaſuring ſeveral Artificers Works, concerned in Building, viz. Carpenters, Joiners, Diggers, Bricklayers, Plaiſterers, Maſons, Glaziers, Painters, Plumbers, Paviours, *and* Smiths; *and under each Head the Prices of ſeveral Sorts of Work and Materials; collected partly from ſeveral approved Authors, and the reſt from my own Experience.*

You will likewiſe find Directions for making an Eſtimate of the Charge of erecting any Houſe of any Height and Bigneſs, built of Brick and Timber, with which I conclude the firſt Part.

In the SECOND PART *you have the Five Orders of Columns accurately deſcribed by Modules and Minutes, with their Entablatures and Pedeſtals, in Plate* 4, 5, VI, VII, VIII, *and a Deſcription of them in the firſt five Chapters, where the principal Parts of each Order are ſummed up, for the more ready finding the Height of every principal Part. And alſo ſome Parallels of the Proportions uſed by* Mr. Gibbs, *and in the* Builder's Repoſitory; *and being ſet in the ſame Light and Manner, and by obſerving Plate* A, *will, at* one View, *ſhew the Difference, if any.*

Plate X *has been already deſcribed.*

Plate XI *ſhews how to reduce Modules and Minutes into Feet and Inches, and is of excellent Uſe in working the* Five Orders *of Architecture: For having found a proportional Diameter, the Table for dividing the Module into* 60 *equal Parts or Minutes to work the Order by, is here ſpared, and a common Two Foot Rule made uſe of to ſupply its place, as plainly appears in the Conſtruction thereof, in Chap.* X.

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The THIRD PART contains a Deſcription of ſeveral Sorts of Stair-Caſes, and the Formation of twiſted Rails; and the beſt Rules for framing all manner of Roofs, whether Square or Bevel. Likewiſe the Ground Rules of Architecture; or the moſt neceſſary Rules to be obſerved for Building in general. The Plates belonging to theſe are XXXI, XXXII, XXXIII, XXXIV, O, P, XXXV, *and* XXXVI.

You have alſo an Alphabetical Explanation of all the Terms uſed in Architecture: And laſtly;

An Inſpectional Table ſhewing the Value of one Foot in Length of Timber, ſquared or cut to any Scantling or Size at any Price.

Thus I have given you an Account of the whole; which is, I preſume, all that is neceſſary to be ſaid in Relation to the Method herein propoſed, for the Advancement of others in a thorough Knowledge of Architecture; and humbly hope this Piece will not be rivalled, much leſs ſurpaſſed by any Performance yet extant.

P. S. *The Reader will find the Improvements made in this Edition to be very Uſeful, and too many to be here ſpecified, and I ſuppoſe the Inſtructions inſerted concerning* Party-Walls *can need no Apology.*

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THE

THE *London* ART *and* METHOD OF BUILDING.

PART the Firſt

Contains ſuch Geometrical Definitions *and* Problems, *as are neceſſary to be known by thoſe who are deſirous to underſtand the* Art of Building.

CHAP. I.

DEFINITIONS. Plate I.

1. A Point *has no Parts*: That is, a *Geometrical Point* is not any *Body (or Quantity)*, but only an *Aſſignable Place* in any *Body (or Quantity)* noted by *a Point*, and is made with your Compaſſes, Pen, or Pencil, *&c.* as A.

Such a Place may be conceived ſo infinitely ſmall as to be void of Length, Breadth, and Thickneſs; and therefore a Point may be ſaid to have no *Parts*.

2. A Line is a *Body* (or Quantity) having *Length* without any Conſideration of *Breadth or Thickneſs*. Of *Lines* there are *Three Sorts*, viz. *Curved* (that is crooked) Lines, as A; *Streight* Lines as B; and *Mixed* Lines, which are compounded of both the former, as C.

3. PARALLEL LINES are thoſe that lie *equally diſtant* from one another in all their *Parts, viz.* Such Lines as being infinitely extended, will never *meet*, as X.

4. LINES not PARALLEL, but INCLINING (viz. *leaning*) one towards another *meet*, and make an *Angle*; the Point where they *meet* is called the Angular Point thus <

5. Of ANGLES there are *Three* Sorts, *viz. Right Angles* E; *Obtuſe Angles* F; and *Acute Angles* G.

6. A SUPERFICIES or SURFACE is the Upper, or very *Outſide* of any viſible Thing. But by *Superficies*, in GEOMETRY, is meant only ſo much of the *Outſide* of any thing as is *incloſed* within a *Line*, or *Lines*, according to the *Form* or *Figure* of the Thing deſigned; and hath *Length* and *Breadth*, but (is conceived to have) no *Thickneſs*. *Conſequently the Bounds, or Limits, of a Superficies are Lines*; as D.

Note. *The Superficies of any Figure is uſually called its* AREA.

7. A CIRCLE is a *plain regular Figure*, whoſe *Area is bounded, or limited*, by one continued *Line*, called the CIRCUMFERENCE, or PERIPHERY, of the *Circle*, made by the Motion of the Compaſſes round a *Point* called its *Center*. A Line drawn thro' the Center is called the *Diameter*, as H I.

8. A TRIANGLE is a *Figure* contained within the Limits of *Three Right Lines*, called *Sides*, *including Three Angles*. Of *Triangles*; there are ſeveral Sorts, as the RIGHT ANGLED TRIANGLE K. The EQUILATERAL TRIANGLE L. The ISOSCELES TRIANGLE M. And the SCALENOUS TRIANGLE N.

Of FOUR-SIDED FIGURES *there are alſo many Sorts*, as, The SQUARE O; which is a plain regular Figure whoſe Superficies is limited by four equal Sides, all at Right Angles with one another.

The RHOMBUS, or *Diamond like Figure*, is that which has *Four* equal *Sides*, but no *Right Angle*. That is, a *Rhombus* is a Square moved out of its right Poſition, as Q.

A PARALLELOGRAM (often called an *Oblong*, or *long Square*) is a *Figure* that hath *four right Angles*, and its *two oppoſite Sides* equal, as P.

A **Rhomboides** is an *oblique-angled Parallelogram*; that is, it is a *Parallelogram moved out of its right Poſition*; as the Figure marked R.

Note. All *four-ſided Figures*, which *differ* from thoſe before-mentioned, are called **Trapezias**. That is, when they have neither *oppoſite Sides*, nor *oppoſite Angles equal*, as S.

A **Polygon** is a *Figure* that has more than *four Sides*, and of theſe there are ſeveral Sorts; a *Figure* having *five equal Sides*, *and equal Angles*, is called a **Pentagon**; one of ſix Sides a **Hexagon**; one of ſeven Sides a **Heptagon**; one of eight Sides an **Octagon**; one of nine Sides a **Nonagon**; one of ten Sides a **Decagon**, *&c.*

CHAP. II.

PROB. I. *Fig.* 1.

FROM any Point in a given right Line, to erect a Perpendicular.

Let AB be a right Line given, and upon it (from the Point *g*) let it be required to erect the Perpendicular *g k*.

Firſt, Open your Compaſſes to any ſmall Diſtance, and, ſetting one Foot in the Point *g*, with the other Foot make the two Marks *c* and *d*.

Secondly, Open the Compaſſes to any other Diſtance, (greater than the Former) and ſetting one Foot in *d*, with the other deſcribe the Arch *e e*; and removing the Compaſſes to *c*, deſcribe the Arch *f f*, croſſing the former in the Point *k*. Laſtly, from *g* to *k* draw the right Line *g k*, it will be the Perpendicular required.

PROB. II. *Fig.* 2.

TO divide a right Line, as AB, *into two equal Parts, in a given Point, as* G, *by a right Line, as e k, perpendicular thereto.*

Let A B be a Line given, to be divided into two equal Parts by a Perpendicular in the Point G, by the Perpendicular Line *e e*.

Firſt, Open your Compaſſes to any Diſtance greater than half the Line A B, and ſetting one Foot of the Compaſſes in A, with the other deſcribe the Arch *d d*.

Secondly, Set one Foot of the Compaſſes in B, and deſcribe the Arch *c c*, croſſing the former in the Points *e*, *e*. Laſtly, Draw the Line *e e*, and it ſhall divide the given Line A B into two equal Parts in the Point G, and ſhall alſo be perpendicular thereunto.

P R O B. III. *Fig.* 3.

TO erect a Perpendicular upon the End of a right Line.

Let A B be a right Line given, and from the End B, let it be required to erect a Perpendicular B *e*.

Firſt, Open your Compaſſes to any ſmall Diſtance, and ſetting one Foot of the Compaſſes in B, pitch down the other Foot at adventure, as at the Point C; and that Foot of the Compaſſes reſting in C, turn the other Leg about till it croſs the given Line in the Point D, and the Foot ſtill reſting in C, with the other deſcribe the Arch F G over the given Point B; then laying a Ruler from D to C; it will cut the Arch G F in *e*. Laſtly, draw the Line B *e*, which will be the Perpendicular required.

P R O B. IV. *Fig.* 4.

FROM a given Point over a right Line, to let fall a Perpendicular to that Line.

Let A B be a Line given, and from the Point E, let it be required to let fall the Perpendicular E F.

Firſt, Open your Compaſſes to any Diſtance greater than from E to F; and ſetting one Foot of the Compaſſes in E, with the other deſcribe the Arch C D.

Secondly, (by the ſecond Problem) divide the Line C D in two equal Parts in the Point F.

Laſtly, Draw the right Line E F, which will be the Perpendicular ſought.

PROB. V. *Fig.* 5.

FROM a given Point which is juſt over, or very near, the End of a right Line, to let fall a Perpendicular thereon.

Let A B be a Line given; and from the Point C, let it be required to let fall a Perpendicular C E.

Firſt, From the Point C draw a right Line C F, croſſing the given Line A B; which Line divide into two equal Parts in the Point D, by *Prob.* II; then ſet one Foot of the Compaſſes in D, open the other to the Point C, and deſcribe the Arch C E, cutting the given Line A B in the Point E. Laſtly, Draw the Line C E, which will be perpendicular to A B, and near to the End thereof.

PROB. VI. *Fig.* 6.

A right Line being given; to draw another right Line, which ſhall be parallel thereunto, at any Diſtance required.

Let A B be a right Line given; and let it be required to draw another right Line F G, parallel thereunto, at the Diſtance of the Line C.

Firſt, Take with your Compaſſes the Length of the Line C, and ſetting one Foot of the Compaſſes in *a*, with the other deſcribe the Arch of a Circle *c c*; then keeping the ſame Opening of the Compaſſes, deſcribe, from *b*, another Arch *d d*.

Laſtly, Lay a Ruler to theſe two Arches *c c* and *d d*, ſo that it may only touch the very Top of them, and draw the Line F G, which will be the parallel Line required.

PROB. VII. *Fig.* 7.

TO make a Geometrical Square, whoſe Sides ſhall all be equal to a right Line given.

Let A B be a Line given, and let it be required to make the Geometrical Square C D E F, each of whoſe Sides ſhall be equal to the given Line A B.

Firſt, Draw the Line E F equal in Length to the given Line A B, and upon the End thereof F (by the third Problem) erect the Perpendicular F D, equal in Length alſo to the given Line A B.

Again, Take the given Line A B in your Compaſſes, and ſetting one Foot of them in E, with the other deſcribe the Arch *a a*; alſo ſet one Foot in F, and with the Diſtance E D, deſcribe the Arch *m m*, cutting the former Arch in the Point C.

Laſtly, Draw the Lines C D, and C E, ſo ſhall you have formed the Geometrical Square C D E F.

P R O B. VIII. *Fig.* 8.

TO make a Parallelogram, whoſe Sides ſhall be equal to any two Lines given.

Let A and B be the two Lines given, and let it be required to make the Parallelogram C D G F, whoſe two ſhorteſt Sides ſhall be equal to the Line B, and its longeſt Sides to the Line A.

Firſt, Take in your Compaſſes the Length of the longeſt Line A, and draw the Line C D, equal thereunto, and upon C erect the perpendicular Line C G equal to the Line B.

Secondly, Take the Line B in your Compaſſes, and ſetting one Foot in D, deſcribe the Arch *e e*; alſo take in your Compaſſes the Diſtance from D to G, and ſetting one Foot of the Compaſſes in C, deſcribe the Arch *o o*, croſſing the former in the Point F.

Laſtly, Draw the Lines G F and C D, which will form the required Parallelogram D C G F.

P R O B. IX. *Fig.* 9.

TO make a Triangle, whoſe Sides ſhall be reſpectively equal to three given right Lines.

Let the three given Lines be A B and C, and let it be required to make a Triangle, whoſe three Sides are equal to the three given Lines.

Firſt, Take in your Compaſſes the longeſt of the given right Lines, and draw a Line equal thereto as D E; then, ſecondly, take in your Compaſſes the Length of the given Line B, and ſetting one Foot of the Compaſſes in D, with the other deſcribe the Arch *e e*;

Then, thirdly, take in your Compaſſes the Length of the given Line C, and ſetting one Foot of the Compaſſes in E, deſcribe the Arch *a a*, croſſing the former in the Point F. Laſtly, Draw the two right Lines D F and E F, ſo ſhall they conſtitute the Triangle D E F required.

PROB. X. *Fig.* 10.

TO make an Angle equal to an Angle given.

Let A B C be an Angle given, and let it be required to make another Angle D F E equal thereunto.

Firſt, Draw a right Line, as E F. Then the Compaſſes being opened to any convenient Diſtance, ſet one Foot in the given angular Point B, and deſcribe an obſcure Arch of a Circle, as G H, which muſt cut both the Sides of the Angle, *viz.* A B and B C. Secondly, The Compaſſes ſtill reſting at the ſame Diſtance, ſet one Foot in F and deſcribe the Arch *e e*, making *e e* equal to G H. Laſtly, From F, through the Point *e*, draw the Line D F, which will form the Angle D F E, equal to A B C, as was required.

PROB. XI. *Fig.* 11.

TO make an equilateral Triangle whoſe Sides ſhall be all equal to a right Line given.

Let the given Line be A, whereof it is required to make an equilateral Triangle B C D.

Firſt, Take between your Compaſſes the Length of the given Line A, and draw the Line B C, equal thereunto. Set then one Foot of the Compaſſes in B, and at the Diſtance of the given Line A, deſcribe the Arch *a a*. The Compaſſes ſtill remaining with the ſame Opening, remove the Foot of the Compaſſes from B to C, and with the other Leg deſcribe the Arch *e e*. Laſtly, Draw the Lines B D and D C, and it will complete the equilateral Triangle B C D required.

PROB. XII. *Fig.* 12.

TO divide a right Line given, into any Number of equal Parts.

Suppoſe the right Line given be A B, and it is required to divide the ſame into ten equal Parts.

Firſt, Draw another right Line of any Length, as C D, and ſet thereon ten equal Parts, taken of any Length alſo at Pleaſure.

Secondly, Take between your Compaſſes that Part of the Line which conſiſts of thoſe ten equal Parts, *viz.* from C to D, and by the foregoing Problem, make therewith an equilateral Triangle, as C D E.

Thirdly, Take between your Compaſſes, the Length of the given Line A B; and ſetting one Foot of the Compaſſes in the Point E, make a Point on each of the two Sides of the Triangle E D and E C, as at *a* and *e*, and draw the Line *a e*; which will then be equal to the given Line A B. Laſtly, In Length from thoſe Diviſions on the Line C D, let Lines be drawn to the Point E croſs the Line *a e*; and the Croſſings of thoſe Lines will divide it into ten equal Parts as required.

P R O B. XIII. *Fig.* 13.

TO circumſcribe a Circle about a Square; alſo to inſcribe a Circle within a Square.

Let A B C D be a Square given, about which let it be required to deſcribe a Circle.

Firſt, From the oppoſite Angles of the given Square, as from A to C and from B to D, draw the two Diagonals croſſing each other in the Point *a*.

Secondly, Set one Foot of the Compaſſes in the Point *a*, and opening the other to any of the Angles of the Square, as from *a* to D, with that Diſtance deſcribe the Circle, and it ſhall touch all the four Angles A B C and D, ſo have you circumſcribed a Circle about a Square.

Again, To inſcribe a Square within a Circle, divide one Side of it into two equal Parts, at O; then ſet one Foot of the Compaſſes in *a*, and extending the other to O, deſcribe a Circle with that Diſtance. This Circle will touch all the Sides of the Square, that is, will be inſcribed within the Circle, as was required.

P R O B. XIV. *Fig.* 14.

TO deſcribe a Circle that ſhall paſs thro' any three given Points, that are not in a ſtrait Line, as A, B, C.

Firſt, Upon the Points A and B, with any Opening of the Compaſſes, deſcribe two Arches to interſect each other as at *a* and *e*; Secondly, On the Points A C deſcribe two more Arches to interſect each other in the Points *c c*, draw the Lines *a e* and *c c*, and where theſe two Lines interſect, as at *o*, place one Foot of the Compaſſes, and extend the other to any of the three given Points A, B, or C, and with the Diſtance deſcribe the Circle A B C, and it will paſs thro' the three given Points as required.

P R O B. XV. *Fig.* 15.

TO inſcribe the largeſt Circle poſſible within a Triangle.

Let A B C be a Triangle given, within which let it be required to inſcribe the largeſt Circle that may be, which ſhall touch all the three Sides thereof.

Firſt, *Divide any two of the Angles of the Triangle into two equal Parts*, as the Angles A B C, by the Line C *a* and A *e*, cutting each other in the Point *o*, ſo ſhall *o* be a Center; upon which if you deſcribe a Circle to touch the three Sides of the Triangle, no larger Circle can be deſcribed therein.

P R O B. XVI. *Fig.* 16.

TO find the Side of any regular Polygon, not exceeding ten Sides, (as in Definition 9.) that this is to be inſcribed in any given Circle, as A C B D.

Firſt, through the Center O draw the Diameter A B, dividing the Circle into two equal Parts.

Secondly, Take in your Compaſſes half the Diameter A O or O B, and ſetting one Foot in A, with the other make the Marks K and L, and draw the Line K L, which ſhall be the Side of a Triangle that will be inſcribed in that Circle.

Thirdly, Draw the Line C D, through the Center O, cutting the Diameter A B at right Angles, and draw the Line A C, which ſhall be the Side of a Square that will be inſcribed in that Circle.

Fourthly, Set one Foot of the Compaſſes in G, and extend the other to C, and draw the Arch-Line C E; then draw the right Line C E, and that will be the Side of a Pentagon, inſcribed within the Circle.

Fifthly, Any of the Semidiameters A O, O B, O C, or O D, are the Sides of a Hexagon, or Figure of ſix Sides, that may be inſcribed in the Circle.

Sixthly, Half of the Line K L, namely K G or L G, is the Side of a Heptagon, or ſeven-ſided Figure, inſcribed in that Circle.

Seventhly, Divide the Line A C, into two equal Parts in F, and draw the Line O F I, cutting the Circumference of the Circle in I, ſo ſhall a Line drawn from A to I, be the Side of an Octagon, that may be inſcribed within the Circle.

Eighthly, *Divide the Part of the Circle* L A K, *into three equal Parts,* one third Part thereof is from L to N, ſo a Line drawn from L to N, ſhall be the Side of a Nonagon, or Figure of nine Sides, that may be inſcribed within this Circle.

Laſtly, The Line O E is the Side of a Decagon, or Figure of ten Sides, that may be inſcribed in this Circle.

PROB. XVII. *Fig.* 17.

TWO right Lines being given, to find a mean Proportional.

Let the two Lines given be B and C, and let them be joined together in one right Line as A K; divide the Line A K into two equal Parts in the Point G, from whence deſcribe the Semicircle A H K; then upon the Point I, where the two Lines B, C were joined, erect a Perpendicular I H which will meet the Semicircle in H, ſo ſhall the Line I H be the mean Proportional required.

PROB. XVIII. *Fig.* 18.

TO make a Geometrical Square equal to a Triangle given.

Let B *d* E be a Triangle given, to be reduced into a Geometrical Square.

Extend the Side of the Triangle B E to O, making E O equal to half the Length of the Perpendicular of the Triangle A C. Secondly, Divide the Line B O into two equal Parts in K, and with the Diſtance K B deſcribe the Semicircle B H O. Upon E erect the Perpendicular E H, meeting the Semicircle in H, ſo ſhall E H be the Side of a Geometrical Square, equal to the Triangle B *d* E.

P R O B. XIX. *Fig.* 19.

TO make a Geometrical Square equal in Area to a Parallelogram.

Let the long Square A E I O be given to be reduced into a Geometrical Square, containing the ſame Quantity or Area.

Firſt, Continue the Side I O of the long Square to Q, making O Q equal to O E the ſhorteſt Side of the long Square.

Secondly, Divide the Line I Q into two equal Parts in F, upon which Point F, with the Diſtance F I or Q F, deſcribe the Semicircle of I B Q, and continue the Side O E to B, ſo ſhall B O be the Side of a Geometrical Square B C O P, which ſhall be equal in Quantity to the long Square A E I O.

P R O B. XX. *Fig.* 20.

TO make a Geometrical Square, equal in Quantity to two Geometrical Squares given.

Let the two Geometrical Squares given, be A and B.

Firſt, Draw the Line C F, and equal in Length to one Side of the largeſt given Square A. Raiſe the perpendicular Line E F, equal in length to one Side of the ſmalleſt given Square B. Secondly, Draw the diagonal Line C E, ſo is C E the Side of the Geometrical Square C E G O, which is equal in Quantity to the two given Squares A and B.

P R O B. XXI. *Fig.* 21.

TO make an equilateral Triangle equal to two given equilateral Triangles.

Let the two given equilateral Triangles be A and B.

Firſt, Draw a right Line C D equal in length to one Side of the given Triangle B. Erect the perpendicular Line D E, equal in length to one Side of the given Triangle A.

Laſtly, Draw the diagonal Line C E, and therewith (by *Prob.* 11.) compleat the equilateral Triangle C E F, which ſhall be equal in Quantity to the two given equilateral Triangles A and B.

PROB. XXII. *Fig.* 22.

TWO Circles being given, to make another Circle to contain the ſame Quantity.

Let the two Circles given, be F and G.

Firſt, Upon the Diameter of the largeſt of the two given Circles at the Point D, erect the perpendicular Line D E, equal in length to the Diameter A B of the leaſt given Circle.

Laſtly, Draw the Line B E, and divide it into two equal Parts in O, take with your Compaſſes the Diſtance from B to O, or from O to E, ſet one Foot of the Compaſſes in the Point O, and deſcribe a Circle. This Circle will be equal in Quantity to the two given Circles F and G.

PROB. XXIII. *Fig.* 23.

TO make a Square, not having one to make it by.

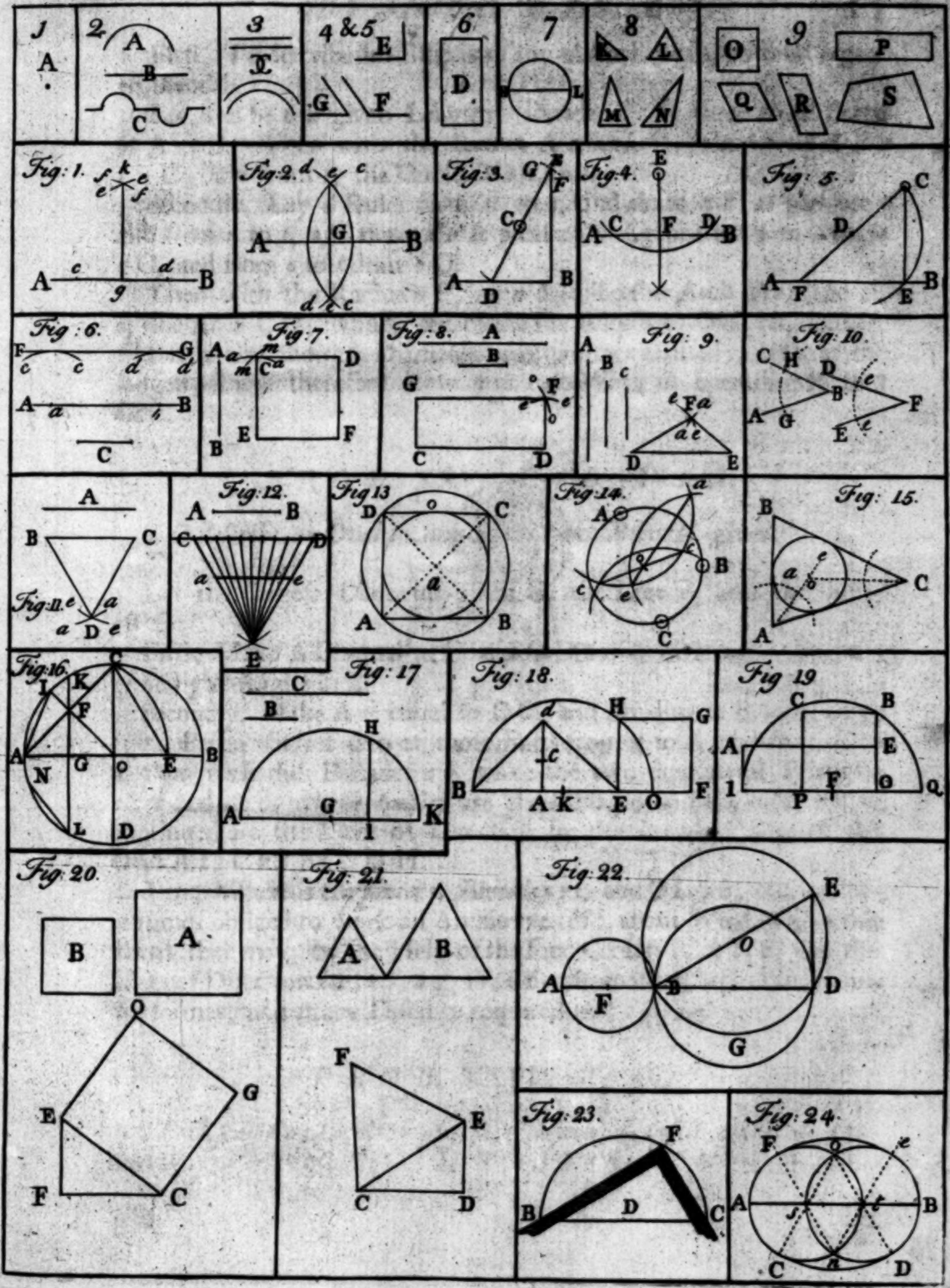
Firſt, Draw a right Line B C, which divide into two equal Parts in the Point D; and upon D, with the Diſtance B D, deſcribe the Semicircle B F C.

Secondly, In any Part of the Circumference thereof make a Point as at F, from which Point two right Lines being drawn to B and C, they ſhall conſtitute a Square, or right Angle, at the Point F; and ſo two Pieces of Wood ſo framed ſhall be a true Square.

PROB. XXIV. *Fig.* 24.

OF Ellipſis, and the various Ways of deſcribing them.

Plate : 1.st



1 A
2 A B C
3 C
4 & 5 E G F
6 D
7 K L
8 K L M N
9 O P Q R S
Fig: 1. f k e e f A c g d B
Fig: 2. d e c A G B d e c
Fig: 3. G E F C A D B
Fig: 4. E A C F D B
Fig: 5. C D A F E B
Fig: 6. F G c c d d A a b B C
Fig: 7. A a m m C a D B E F
Fig: 8. A B G F e e C D
Fig: 9. A B c e F a a e D E
Fig: 10. C H D e B A G E e F
A B C Fig: 11. e a a D e
Fig: 12. A B C D a e E
Fig 13 D o C a A B
Fig: 14. a A c B c e C
Fig: 15. B e a o C A
Fig: 16. C I K F A N G o E B L D
Fig: 17 C B H A G I K
Fig: 18. d H G c B A K E O F
Fig 19 C B A E 1 P F O Q
Fig: 20. B A O E G F C
Fig: 21. A B F E C D
Fig: 22. E o A F B D G
Fig: 23. F B D C
Fig: 24. F o e A s t B C n D

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Firſt, To deſcribe an Ellipſis to any given Length, without regard to Breadth.

Let A B be the given Length. Divide it into three equal Parts, as A *s t* B. Then with the Radius A *t*, deſcribe the Circle A F *o t n* C; and from *t*, the Circle B D *n s o e*.

Secondly, Lay a Ruler from *n* to *s*, and draw *n* F at pleaſure; alſo from *n* to *t*, and draw *n e* at pleaſure. Again from *o* to *s* draw *o* C, and from *o* to *t* draw *o* D.

Then with the Radius *n* F, on *n* deſcribe the Arch F *e*; and on *o*, the Arch C D; which compleats the Ellipſis or Oval required.

But as the ſhorteſt Diameter is oftentimes limited as well as the longeſt, I will therefore ſhew you two Ways of operating in that Caſe.

P R O B. XXV. *Fig.* 25. *Plate* II.

TO deſcribe an Oval to any Length and Breadth given.

Let the longeſt Diameter given be the Line F, and the ſhorteſt G.

Firſt, Make A B equal to F, and C D to G, dividing A B equally at right Angles in *a*.

Secondly, Make A ⊙ equal to D C, and dividing ⊙ B into three equal Parts; ſet off two of thoſe Parts from *a* to *b*, and from *a* to *c*, then with the Diſtance *c b* make the two equilateral Triangles *c d b* and *c e b*, whoſe Angles are the Centers; and the Sides being continued are the Lines of Direction for the ſeveral Arches of the Oval A I, C F, B G, D H.

Note, Whereas *Carpenters*, *Bricklayers*, and *Maſons*, &c. are oftentimes obliged to work an Architrave, &c. about Windows, of this Form, they may, by the Help of the four Centers *c*, *d*, *b*, *e*, and the Lines of Direction *b d*, *e f*, *d g*, *e i*, deſcribe another Arch-Line round the former, and at any Diſtance required as *h i f g*.

P R O B. XXVI. *Fig.* 26.

TO deſcribe an Oval to any Length and Breadth required, another Way.

Let it be required to deſcribe the Oval C E D E, whoſe longeſt Diameter ſhall be equal to the given Line A, and ſhorteſt to the given Line B.

Firſt, Draw the Line C D, equal in Length to A; alſo E F equal in Length to B, and at right Angles with C D.

Secondly, Take the Diſtance C O or O D, and with it, from the Point E and F, deſcribe the Arches *b* and *f* upon the Diameter C D.

Laſtly, Strike in a Nail or Pin at *b*, and at *f*, the Interſections of thoſe Arches with the Line C D, and put a Thread or String round them, of ſuch a Length that the two Ends may juſt reach to E or F. Hold theſe two Ends tight between your Fingers, with a Black-lead Pencil (or other thing proper to mark with) between them, and thoſe two Ends being carried round will cauſe the Pencil to deſcribe the Oval or Ellipſis E D F C.

P R O B. XXVII. *Fig.* 27.

TO deſcribe an Oval, or Ellipſis, to any Length and Breadth given, another Way, by the Interſection of Lines.

Firſt, Draw the Line A B equal in Length to the longeſt Diameter given, and thereon deſcribe a Circle; alſo on the ſame Center C deſcribe another Circle equal to the ſhorteſt Diameter.

Secondly, Divide the outer Circle into any Number of Parts, the more the better, as here into 24; and carrying a Ruler through each of thoſe Diviſions to the Center C, you may divide the inner Circle into the like Number of Parts.

Laſtly, Drawing Parallels to the Diameter from the inner Circle and Perpendiculars from the outward, their Points of meeting will form the Ellipſis, or Oval, required.

P R O B. XXVIII. *Fig.* 28.

TO find the Center and the two Diameters of an Oval.

Let A B C D be the Oval propoſed, whoſe Center and Diameters are to be found.

Draw at Pleaſure the two parallel Lines Q G, M O, biſect them in the Points H, N, and draw the Line P E, biſect it in K, and upon K, as a Center, deſcribe a Circle at Pleaſure as F L R, cutting the Oval in the Points F, L; draw the right Line F L, biſect it in I, and through the Points I K draw the greateſt Diameter A C; through the Center K draw the leaſt Diameter B D, parallel to the Line F L, and you have what was required.

P R O B. XXIX. *Fig.* 29.

TO draw a ſpiral Line about a given right Line, as A C.

Divide half the right Line A C, into as many equal Parts as there are to be Revolutions, as here into 4.

Divide the half A I into four equal Parts I K G H. Divide alſo I K into two equal Parts in B. Upon the Point B, deſcribe the Semicircles K I, G F, H E, A D; upon the Point I deſcribe the Semicircles K F, G E, H D, A C; and you will have the ſpiral Line required.

P R O B. XXX. *Fig.* 30.

UPON a given right Line to deſcribe any Polygon from a Pentagon to a Duodecagon; that is, from a Figure of five Sides to a Figure of twelve Sides.

Let A B be a Line given, upon which a Pentagon, *&c.* is to be made.

Biſect the Line A B in Q, and erect the perpendicular Q P. From the Point A deſcribe the Arch B H, and from B the Arch A H, and divide B H into ſix equal Parts, as H 1, 1 2, 2 3, 3 4, 4 5, 5 B.

This done, let a Pentagon be required. From the Point H with the Interval H 1, one of thoſe equal Parts of B H, deſcribe the Arch, I 1 7, and the Point I will be the Center of a Circle containing the given Line A B five times, the Interval I B being the Radius thereof. If you take the Point H for the Center of another Circle, and H B for the Radius, this new Circle will contain the Line A B ſix times. From the Point 7, with the Radius 7 B, a Circle drawn will contain A B ſeven times.

Again, From the ſame Point H, with the Interval H 2, which makes two of the equal Parts of B H, deſcribe the Arch 2 8; and from the Point 8, with the Radius 8 B, you may draw a Circle in which A B ſhall be the Side of an Octagon. From 9, with the Radius 9 B, you form a nine-ſided Figure. From 10, a ten-ſided Figure; and ſo on to 12.

PROB. XXXI. *Fig.* 31.

TO deſcribe a Scheme-Arch, the Baſe and Perpendicular being given.

Firſt, Draw the Line A B, and biſect it at right Angles by the Line *c f*, and from *g* to *c* ſet on the Heighth of the Arch and draw the Line *c* B; then from the Middle thereof erect a perpendicular Line, as *e d*, ſo as to cut the perpendicular Line *c f*; and the Interſection is the Center for deſcribing the Arch required.

PROB. XXXII. *Fig.* 32.

ANOTHER Way, by the Interſection of Lines.

Firſt, Draw the Baſe Line A B, and biſect, or middle it, at *c*, from whence erect a Perpendicular *c d* equal in length to *twice* the Heighth of the Arch required, and draw the Lines A *d*, and *d* B, and divide each Line into any Number of equal Parts, as here into 10, and drawing right Lines to every correſpondent Diviſion, as from 1 to 1, 2 to 2, *&c.* the Interſection of thoſe Lines will form the Arch A *e* B; which was to be done.

PROB. XXXIII. *Fig.* 33.

TO deſcribe an Arch of equal Heighth to a Semicircle, but a greater Length on the Baſe.

Let A B *c* be a Semicircle, and *d g* the Length of the Baſe given for the Arch to riſe equal to the Semicircle. Through the Center of the Arch A *c* B at *e*, draw the Line *c e f* at right Angles to A B, and to any length at pleaſure; from the Points *c* and *g*, taking for your Interval any Lines longer than what you may judge half the Diſtance between thoſe Points amounts to, deſcribe two Arches on either hand, cutting each other in *a* and *i*: draw a Line ſo as to cut the perpendicular Line *c f* at O, and O is the Center for the Arch *d c g* as required.

PROB.

P R O B. XXXIV. *Fig.* 34.

TO deſcribe an elliptic Arch on the ſhorteſt Diameter.

First, Draw the Diameter A B, and on the middle thereof at *k*, erect the Perpendicular *k o*, equal to the Height of the Arch; divide the Perpendicular *k o* into two equal Parts at *e*; continue out the Line A B on both Sides at pleaſure, and from the Point *k*, ſet on the Length of *k o*, as at *c* and *d*; through the Points *c e*, *d e*, draw the Lines *c e f* and *d e g* to a Length at Pleaſure; and *d*, and *c* are Centers for the Arches A *g* and B *f*, and *e* the Center for the Arch *g o f*, which will form the Arch required.

P R O B. XXXV. *Fig.* 35.

TO draw a Gothic Arch.

Take between your Compaſſes the Length of the Line A B, and on the Points A and B deſcribe the Arches A *e* and B *d*, and it will compleat the Gothic Arch required.

P R O B. XXXVI. *Fig.* 36.

TO deſcribe the Gothic Arch of another Form.

Divide the Line A B into three equal Parts, at *c*, *d*, B, take between your Compaſſes the Diſtance of two of theſe Parts, and on the Points *c* and *d* deſcribe the Arches A *e* and B *e*, and you have your Deſire.

P R O B. XXXVII. *Fig.* 37.

ANOTHER Form.

Divide the Line A B alſo into three equal Parts, at *e*, *f*, B, from the Points A and B let fall alſo the perpendicular Lines A *c* and B *d*, equal in Length to two of the Diviſions of the Line A B; draw the Lines *c h* and *d g*; from the Points *e*, *f*, with the Length of *f* B, deſcribe the Arches A *g* and B *h*, and from the Points *c*, *d*, deſcribe the Arches *g i*, and *i h*, and it will compleat another Gothic Arch.

P R O B. XXXVIII. *Fig.* 38.

ANOTHER Form.

As before, Divide the Line A B into three equal Parts, as A *a*, *a b*, *b* B, and on the Points A, *a*, *b*, B, with the Diſtance of two Diviſions make four Arches interſecting at *c*, *d*. Through the interſecting Points *c*, *d*, and the Diviſions *a*, *b*, draw the Lines *c f*, and *d e*, and on the Points *a* and *b* deſcribe the Arches A *e* and B *f*, and on the Points *c* and *d* the Arches *e g*, and *f g*, and it will compleat another Gothic Arch.

P R O B. XXXIX. *Fig.* 39.

TO find the Angle of a regular Groin, or the Miter Bracket of a Cove.

Firſt, Deſcribe the Form of the Cove intended, as E A B, then the Plan of the Angle, or Miter, as the Line B C. Divide the Projection, or Baſe-line, B D, into any Parts, equal or unequal, any how, and raiſing Perpendiculars to touch the Moulding of the Cove; extend alſo thoſe Lines to cut the Miter, or Angle, B C; from thence raiſe Perpendiculars, ſetting on them the Length of each correſpondent Line, from the Baſe-line to the Cove, as 1, 2, 3, *&c.* This done, if you trace by Hand, or ſtick in Nails in the Points, and bend a thin Lath round them, and ſtrike by its Edge, you will have formed the Mould for the Angle-Bracket required.

N. B. This Method will ſerve let the given Arch E B be what it will, Ellipſis, Ogee, *&c.* or let the Angle be a right Angle, or acute, or obtuſe.

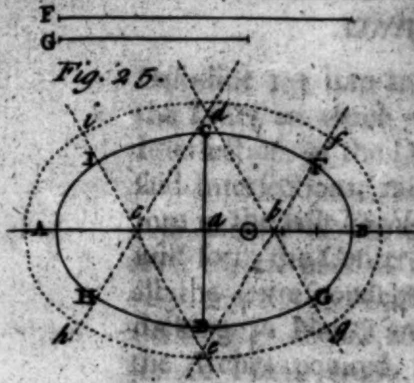
P R O B. XL. *Fig.* 40.

TO make the different Centers for regular or irregular Groins, ſo that their Miters ſhall be true.

Firſt, Lay down the Plan of the Vault, Room, *&c.* as 1, 2, 3, 4, and draw the Diagonals, at the End from the Arch as here a Semicircle A; and as in the laſt *Problem*, ſo in this divide the

Baſe-line

Fig. 25.



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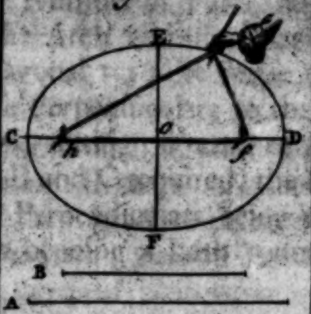
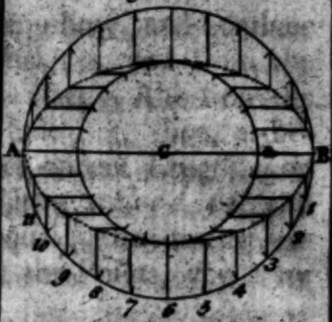


Fig. 27.



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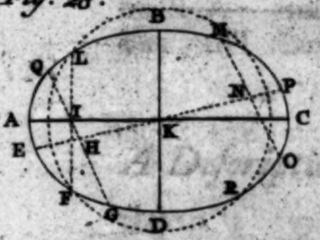


Fig. 29.

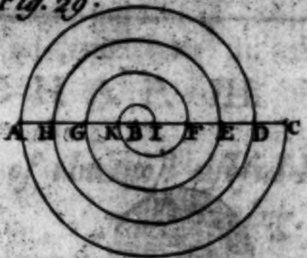
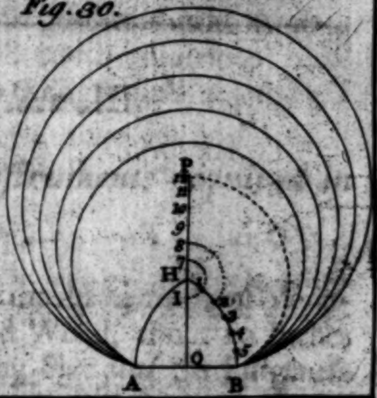


Fig. 30.



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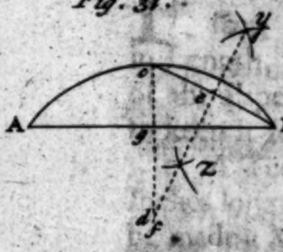


Fig. 32.

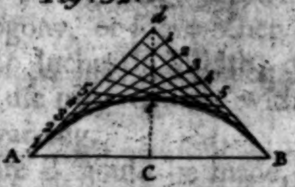


Fig. 33.

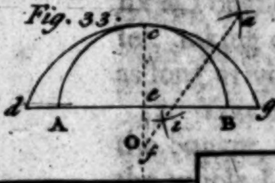


Fig. 34.

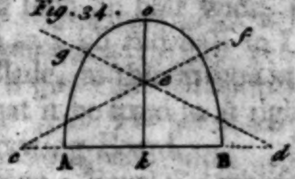


Fig. 35.

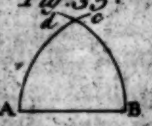


Fig. 36.

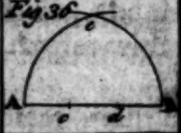


Fig. 37.

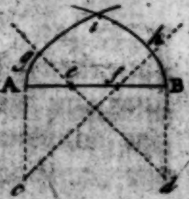


Fig. 38.

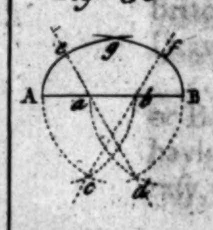


Fig. 39.

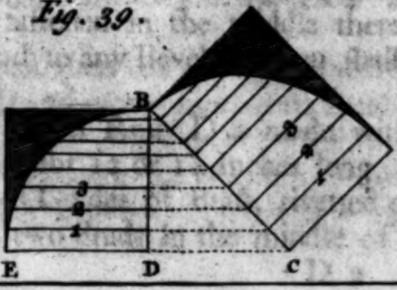
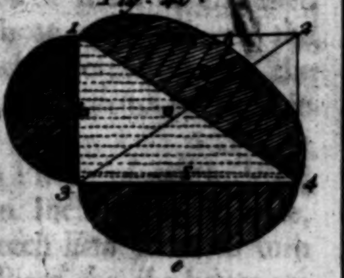


Fig. 40.



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Baſe-line 1 3 into any Number of Parts, or any how, and continue the Lines to touch the Arch and the Diagonal 1 4, and from the Interſections of the Diagonal 1 4 raiſe Perpendiculars. Alſo from the ſaid Interſections, raiſe Perpendiculars to the Side 3 4; then, as before in the laſt *Problem*, ſetting off each correſpondent Length, you will form the Centers B and C required, the Lines, *ab*, *cd*, *ef*, and all the correſpondent Perpendiculars being equal; then tracing, or ſticking in Nails, and bending a Lath round the Points, you draw the Arches required.

CHAP. III. *Plate* III.

A Deſcription of the moſt uſeful Inſtruments required in Drawing.

FIRST, a Drawing-Board A, which ſhould be made of Wainſcot, Mahogony, or ſome other hard Wood, about 19 Inches in Length, and 16 Inches in Width, or any Size that the Largeneſs of the Paper you uſe may require, with Pieces glewed on to each end to keep it from warping.

2. A Tee-ſquare B ſhould be made, with its Stem 8, 10, or 12 Inches long and an Inch an half wide, in the middle of which muſt be made a Mortiſe an Inch and half in Length, into which you muſt fix a Tongue or Blade, as thin as you well can, the thinner the better, taking care that it be fixed in at right Angles with the Stem, and as long as your Drawing-Board.

3. You muſt have a Bevel C, whoſe Stem muſt be like that of the Square, only with this difference, the Stem muſt be mortiſed the whole Length within about ¼ of an Inch at each end: If the Blade be faſtened in the middle thereof with a Screw, it will the better ſtand to any Bevel that you ſhall have occaſion to ſet it to in Drawing.

4. A Parallel Ruler D is made with two Pieces of hard Wood or Braſs, about 12 or 14 Inches long, and an Inch or more wide, having two Guides of Braſs, rivetted on at each End ſo as to turn eaſy, and two Studs in the middle of each Piece for the better re-

moving the Sides backwards or forwards. This you may have occaſion for in drawing ſtraight Lines, but it is exceedingly uſeful and expeditious in drawing Lines parallel to each other, *&c.*

5. Three Pair of Compaſſes, *viz.* one Pair of about ſix Inches in length, with the ſeveral Points for deſcribing of Arches, with Ink, Black-Lead, *&c.* a ſecond Pair of an Inch and half in length with the Pen-point only; to deſcribe very ſmall Circles, Arches, *&c.* and Laſtly, a third Pair of 4, or 4½ Inches in length, with their common Points only, to meaſure Intervals, draw occult Lines, Arches, *&c.*

6. A Hand-drawing Pen for delineating right Lines. A Plain Scale, containing divers Scales of equal Parts, by which Plans and Uprights of Buildings are drawn.

PROB. XLI. *Fig.* 4.

TO raiſe a Perpendicular from a given Point, at the end of a right Line, equal in Heighth to a given right Line by the Help of the Tee-Square and Drawing-Board.

Let the Heighth of the perpendicular Line be equal to the Line E F.

Firſt, Faſten on your Paper on the Drawing-Board with Sealing-Wax at the four Corners, and then apply your Tee-Square to any Side of the Drawing-Board, as H I, and by its Edge draw a Line on the Paper at pleaſure, as *a c*, and let the Point *a* be the given Point. Take between your Compaſſes the Length of the given Line E F, the Heighth of the Perpendicular required, then applying your Tee-Square to the other Side of your Draught-Board G H, ſlide its Edge until it lies over the given Point *a*; let one Foot of the Compaſſes in the Point *a*, and cloſe to the Edge of the Square with the other Foot make a Prick, as at *e*. Draw the Line *ae* which is the Perpendicular required.

Here note, That if your Draught-Board is not truly ſquare at its Angles, G H I K, and the Sides as truly ſtrait as can be, the Work will be falſe.

CHAP. IV.

Meaſuring of Superficial PLAINS.

BY meaſuring of Plains, is meant the finding the Area, or Content of Superficial Figures, ſuch as are Four-ſided Figures, Triangles, Circles, *&c.* But becauſe that the uſual way of taking Dimenſions is by Feet and Inches, I ſhall firſt ſhew you how to multiply Feet and Inches by Feet and Inches, before I come to particular Examples in Meaſuring.

EXAMPLE I.

Let it be required to multiply 11 Feet 4 Inches, by 7 Feet 5 Inches. Place the Numbers to be multiplied, in order, one under another, *viz.* Feet, under Feet, Inches under Inches; making a Croſs between the Feet and Inches, and drawing a Line under them as in the Margin.

Feet.	*Inches.*
11	4
7	5

The Product of 11 Feet by 7 Feet, is - - 77 — 0
The Product of 5 Inches by 11 Feet, is — - 4 — 7
The Product of 4 Inches by 7 Feet, is - - - - 2 — 4
The Product of 5 Inches by 4 Inches, is - - - 1 — 8

The Total Product, or Content, is - - 84 — 0 — 8

For the better underſtanding the foregoing Example, and all other Queſtions of the like Nature, obſerve the following Rules, *viz.*

1. That if Feet are multiplied by Feet the Product is Feet.

2. If Inches are multiplied into Feet, every 12 of the Product is 1 Foot; and any Number leſs than 12 is Inches.

3. If Inches are multiplied into Inches, every 12 of the Product is 1 Inch; and any Number leſs than 12 are Parts of an Inch.

4. If Parts of an Inch are multiplied by Feet, every 12 of the Product is 1 Inch, and any Number leſs than 12 are Parts of an Inch.

5. If Parts of an Inch are multiplied by Inches, every 12 of the Product is 1 Part, and any Number leſs than 12 are Seconds.

6. If Parts of an Inch are multiplied by Parts, every 12 of the Product is 1 Second; and any Number leſs than 12 are Thirds.

Note, For the ready finding the Twelves in any Product, its beſt to make a Table of Twelves, and to get it perfectly by Heart, as follows:

2	times 12 is	24	7	times 12 is	84	12	times 12 is	144
3		36	8		96	13		156
4		48	9		108	14		168
5		60	10		120	15		180
6		72	11		132	16		192

EXAMPLE II.

Let it be required to multiply 15 Feet 6 Inches and a Quarter, by 12 Feet 8 Inches and three Quarters.

And here note, that as a Foot contains 12 Inches Line-Meaſure, ſo an Inch is ſuppoſed (or accounted) to contain 12 Parts Line-Meaſure, and each Part to contain 12 Seconds, and each Second to contain 12 Thirds, and each Third to contain 12 Fourths, &c. And ſo the Proportion might be continued, if there were occaſion, to Fifths, Sixths, &c.

Alſo obſerve, that each Place of Twelfths is diſtinguiſhed by having a Letter put over it; thus, over the Feet write F, over Inches I, over Parts P, over Seconds S, over the Thirds T, &c. as in this Example.

Set down your Dimenſions, as in the Margin, and read it thus, 15 Feet, 6 Inches, and 3 Parts of twelve, which is the ¼ Inch; by 12 Feet, 8 Inches, and 9 Parts of 12, which is the ¾ of an Inch. Multiply the 15 Feet by the 12, or elſe take but one Figure at a time, ſaying twice 15 is 30, and once 15 is 15.

The Product of 8 Inches by 15 Feet, is 120 Inches, which divided by 12 is

The Product of 6 Inches, by 12 Feet, is

The Product of 8 Inches by 6 Inches is 48 Inches, which divided by 12 is

	F.	I.	P.	S.	T.
	15	6	3	0	0
	12	8	9	0	0
	30	0	0	0	0
	15	0	0	0	0
	10	0	0	0	0
	6	0	0	0	0
	0	4	0	0	0
Carried over	196	4	0	0	0

	F.	I.	P.	S.	T.
Brought over —— ——	196	4	0	0	0
The Product of 3 Parts by 12 Feet is 36, which divided by 12 is — — —	0	3	0	0	0
The Product of 9 Parts by 15 Feet is 135, which divided by 12 is — — —	0	11	3	0	0
The Product of 3 Parts by 8 Inches is 24, which divided by 12 is — — —	0	0	2	0	0
The Product of 9 Parts by 6 Inches is 54, which divided by 12 is — — —	0	0	4	6	0
The Product of 3 Parts by 9 Parts is 27, which divided by 12 is — — —	0	0	0	2	3
The Total Product is — —	197	6	9	8	3

Note, That in caſting up the Sum, you muſt carry 1 for every 12 to the next Denomination.

Thus you will ſee the Area, or Content, of 15 Feet, 6 Inches, and a Quarter (or 3 Parts of 12) in Length, multiplied by 12 Feet, 8 Inches, and three Quarters (or 9 Parts in 12) in Breadth is 197 Feet, 6 Inches, and 9 Parts of an Inch, accounted to have 12 Parts and 8 of one of thoſe Parts; and 3 of one of thoſe Seconds. But theſe Seconds and Thirds are not worth the ſetting down, or taking notice of, the Value of thoſe Parts being ſo ſmall.

Having now ſhewn you how to multiply Feet and Inches, by Feet and Inches, &c. I ſhall proceed to the meaſuring of Superficies and Solids. And firſt of Superficies.

PROP. I. *Plate* III.

TO meaſure a Square, and a Parallelogram, or long Square, as the Figures A *and* B, *whoſe four Angles are all right.*

RULE.

Multiply one Side by the other, and the Product is the Area required.

PROP. II.

TO find the Content of a Trapezium, two Sides whereof are parallel; as Fig. C.

RULE.

RULE.

Add the two parallel Sides together, whereof take half the Sum for the Length; multiply that by the Perpendicular *a e*, and the Product is the Content required.

PROP. III.

TO meaſure any Triangle; as the Figures D *and* E.

RULE.

Multiply the longeſt Side (which is uſually called the Baſe) by half the Perpendicular let fall from the Angle oppoſite to the Baſe which is the pricked Line, and the Product is the Content required.

PROP. IV.

TO find the Content of a Trapezium, as the Figure F.

RULE.

Draw the Diagonal Line *a b*, which divide the Trapezium into two Triangles; next draw the two perpendicular Lines *c d*. Then take the half of the Sum of the two Perpendiculars when added together for your Breadth, and the Line *a b* for your Length, and multiply them, and the Product is the Content.

PROP. V.

TO find the Area, or Content, of a Pentagon, as the Figure G.

RULE.

From the Center *a* draw the Lines *a b* and *a c*, and let fall the Perpendicular *a d*; meaſure the Triangle *a b c*, as before is taught, and the Product multiplied by 5, is the Content of the Pentagon required. Here you muſt note, that what is here ſaid of the Menſuration of a Regular Pentagon, may be alſo underſtood of the Menſuration of a Hexagon, Heptagon, Octagon, *&c.*

PROP.

P R O P. VI.

TO find the Content of any unequal ſided Figure, as the Fig. H.

R U L E.

Divide it into Triangles, marking each with an Alphabetical Letter or a Figure. Then beginning with the firſt Triangle, as that marked *a*, find its Content and place it down, as in the Table, and in like manner go through with the whole; then, laſtly, by adding all the ſeveral Triangles together, you will have the whole Content of the unequal ſided Figure as required.

a	3	2	3
b	4	6	0
c	5	3	6
d	3	6	0
	16	5	9

P R O P. VII.

THE Diameter of a Circle being given, to find the Circumference thereof Arithmetically, as Fig. I.

R U L E.

As 7 is to 22, or as 113 to 355, ſo is the Diameter to the Circumference.

E X A M P L E.

Suppoſe the Diameter given be 12 Feet, as Fig. I, it is required to find the Circumference thereof.

Multiply the Diameter (being 12) by 22, the Product is 264, which divided by 7 brings 37 Feet and $\frac{5}{7}$ of a Foot for the Circumference. Or multiply the Diameter 12 by 355, the Product is 4260, which divide by 113 brings 37 Feet and $\frac{79}{113}$ of a Foot for the Circumference; this laſt Way is the trueſt, the other makes the Circumference a ſmall matter too much.

If the Circumference be given, and the Diameter be required, it appears by this Rule, the Circumference 37 $\frac{79}{113}$ being multiplied by 113, and the Product divided by 355, gives 12 the Diameter.

PROP. VIII. *Fig.* I.

THE Diameter and Circumference of a Circle being given, to find the Area, or ſuperficial Content thereof, Arithmetically, divers ways.

RULE 1.

Multiply half the Diameter by half the Circumference, it ſhews the Content of any Circle.

RULE 2.

Or multiply the whole Circumference by the Semidiameter *a c*, and take half the Product.

RULE 3.

Or multiply the Square of the Diameter by 11, and divide the Product by 14, the Quotient is the Content.

PROP. IX. *Fig.* I.

HAVING only the Diameter of a Circle given, to find the Content.

RULE.

Say, As 7 is to 22, ſo is the Square of the Semidiameter to the Content of the Circle.

EXAMPLE.

Let the Diameter given be *a b*, as Fig. I.

Multiply the Square of the Semidiameter *a c*, which is 36, by 22, and the Product is 792, which divided by 7, gives 113 $\frac{1}{7}$ for the Content required.

PROP.

PROP. X. *Fig.* I.

HAVING the Circumference given, to find the Content.

RULE.

As 88 (which is 4 times 22) is to 7, ſo is the ſquare of the Circumference to the Content.

Multiply the Square of the Circumference by 7, and divide the Product by 88, and you have the Content required.

PROP. XI. *Fig.* I.

THE Content of a Circle being given, to find the Diameter.

RULE.

As 22 is to 28, ſo is the Content to the Square of the Diameter.

Multiply the Content given by 28, and divide the Product by 22. The ſquare Root of that Quotient is the Diameter ſought. Or thus, and more exactly, by *Metius*'s Proportion; As 355 is to 452, So is the Content given to the Square of the Diameter.

PROP. XII. *Fig.* I.

THE Content of a Circle being given, to find the Circumference.

RULE.

As 7 is to 88, ſo is the Content to the Square of the Circumference.

Multiply the Content given by 88, and divide the Product by 7, and the Square Root of that Quotient is the Circumference required.

PROP. XIII. *Fig.* I.

THE Content of a Circle being given, to find the Side of a Square, the Content of which Square ſhall be equal to the Content of the Circle.

RULE.

Extract the Square Root of the given Content, and that Root is the Side of a Square required.

PROP. XIV. Fig. I.

THE Diameter of a Circle being given, to find the Side of a Square, the Area of which Square ſhall be equal to the Area of the Circle of the given Diameter.

RULE.

As 7 is to 22, ſo is the Square of the Semidiameter to the Content required. But this Proportion of *Archimedes* is not ſo true as that delivered by *Metius*, and therefore I would adviſe the Reader always to make uſe of his Proportion, *viz.* As 113 is to 355, ſo is the Square of the Semidiameter to the Content required.

Multiply the Square of the Semidiameter by 355, and divide the Product by 113, it gives the Side of the Square required. This Content is leſs than the Content produced from *Archimedes*'s Proportion conſiderably, but more exact; and the greater the Diameter is, the more the Difference will be.

Or thus, As 452 (which is 4 times 113) is to 355, ſo is the Square of the Diameter to the Content required.

PROP. XV.

THE Diameter of a Circle being given, to find the Side of a Square which may be inſcribed within that Circle.

RULE.

Square the Diameter, and the Root of half the Product is the Side of the Square required.

PROP. XVI.

THE Diameter and Arch-Line of a Semicircle being given, to find the Area thereof.

Let *a b c*, in *Fig.* K, be a Semicircle given, whoſe Diameter is *a c*, and the Arch-Line *a b c*; it is required to find the Area of that Semicircle.

RULE.

Multiply half the Arch-Line by the Semidiameter, the Product will be the Content required.

PROP. XVII. *Fig.* K.

THE Semidiameter and Arch-Line of a Sector of a Circle being given, to find the Area of the Sector.

Let *b c d* be the Sector of a Circle, whoſe Semidiameter is *d c*, or *d b*, and the Arch-Line *b c*; and let it be required to find the Area.

RULE.

Multiply the Semidiameter by half the Arch-Line *b c*, the Product is the Area required.

PROP. XVIII. *Fig.* K.

ANY Segment, or Part of a Circle, being given, to find the Content.

Let *a c b e*, be the Segment of a Circle, the Content whereof is required.

RULE.

Firſt, Find out the Center of the Arch-Line *a c b* (by the 14th *Probl.* of Geometry), then draw the Lines *d a* and *d b*, and caſt up the whole Figures *a c b d*, as in the laſt Propoſition; then find the ſuperficial Content of the Triangle *a d b*, and deduct the ſame out of the whole Content, the Remainder is the Content of the given Segment as required.

By this Rule all manner of Segments, or Parts of a Circle, whether greater or leſſer, than a Semicircle, may be eaſily meaſured.

PROP. XIX. *Fig.* K.

TO find the Diameter of a Circle, by having one part of the Diameter given, alſo having the Length of the Chord croſſing the Diameter in the given Part.

Let *c e* be the Part of the Diameter given, alſo let *a b* be the given Chord which cuts off the given Part of the Diameter; it is required to find the whole Diameter arithmetically.

RULE.

Square one half of the Chord-Line *a b*, and divide the Product by the given Part of the Diameter *c e*, the Quotient being added to the ſaid given Part, is the Length of the Diameter required.

PROP. XX.

ANY Segment of a Circle being given, whoſe Chord-Line doth not exceed the Chord of the Quadrant of the ſame Circle; to fine the Content without finding the Diameter, and without deſcribing any more of the Circumference. And very near the Truth in ſmall Segments.

Let the Segment given be *Fig.* L, whoſe Chord-Line is *a i*, and the Part of the Diameter cut off by the Chord-Line *u o*, the Content of this Segment *a o i u* is required.

RULE.

Take the whole Length of the Chord *a i*, and $\frac{2}{3}$ of the Length of the Line *u o*, to which $\frac{2}{3}$ add $\frac{7}{12}$; then multiply thoſe two Lengths, and the Product gives you the Content.

Note, The two little Segments, *a o*, and *o i*, are meaſured by the ſame Rule.

PROP.

P R O P. XXI. *Fig.* M.

TO find the ſuperficial Content of an Oval.

R U L E.

Multiply one Diameter by the other, and extract the Square Root of their Product. That Root ſo extracted ſhall be equal to the Diameter of a Circle, whoſe ſuperficial Content ſhall be equal to the Oval given, which may be found by *Prop.* 8. for a Circle.

P R O P. XXII.

TO find the ſuperficial Content of a Cylinder.

Note, That a Cylinder is a ſolid Body, ſuch as is uſed in Gardens for the rolling of Walks.

R U L E.

As 7 to 22, or as 113 to 355, ſo is the Diameter and Length of the Side multiplied one by the other, to the ſuperficial Content of the Out-ſide of the Cylinder, the two Baſes, or Ends being excluded.

E X A M P L E.

Let *Fig.* N, be a Cylinder whoſe ſuperficial Content is required. Multiply the Diameter by the Length, and multiply that Product by 355, and divide the laſt Product by 113, the Quotient ſhews the ſuperficial Content of the Cylinder required. If you work by the Proportion of 7 to 22, the Content will be a ſmall matter more than the former.

If you have the Circumference and Length of a Cylinder given, and the Content be required. —

Multiply the Circumference by the Length, and the Product is the ſuperficial Content.

If it is required to have the ſuperficial Content of the two Baſes, or Ends of the Cylinder, you muſt find the Content of them, as is ſhewn in *Prop.* 8. and when thoſe are found, add their Sums to the former Content, and you will have the ſuperficial Content of the Cylinder, with the two Baſes or Ends included.

P R O P. XXIII.

TO find the ſuperficial Content of a Cone.

A Cone is a Body which hath a Circle for its Baſe, from whence it diminiſheth equally, (like a round Spire of a Steeple) 'till it end in a Point.

Let *Fig.* O, be a Cone, the Circumference of whoſe Baſe is 28 Feet, and the Length of the Side 12 Feet, the Content of which is required.

R U L E.

If you require the Content of the whole Cone, that is to ſay, the Content of the Baſe, as well as the Content of the Outſide; then multiply the whole Side by half the Circumference of the Baſe; and to the Product add the Content of the Plain of the Baſe.

E X A M P L E.

The whole Circumference is 28 Feet, the half thereof is 14 Feet, which being multiplied by the Length 12 Feet, produces 168 Feet for the Content of the Outſide, without the Baſes; then for the Content of the Circle, whoſe Circumference is 28, (by *Prop.* 10.) find the Content thereof, and add it to the former Content, and the Product is the ſuperficial Content of the Cone including its Baſe.

E X A M P L E.

	F.
The Content of the Cone without its Baſe is	168
The Content of the Baſe is — — —	63 $\frac{4}{11}$
Whole Content	231 $\frac{4}{11}$

P R O P.

PROP. XXIV.

TO find the ſuperficial Content of a Pyramid.

As a Cone hath a round Baſe, and diminiſheth equally 'till it end in a Point; ſo a Pyramid hath an angular Baſe of 3, 4, 5, 6, or any other Number of Sides, and diminiſheth to a Point at the Top.

Let *Fig.* P, be a Pyramid whoſe Baſe is ſquare, and whoſe ſuperficial Content is required.

RULE.

Add all the four Sides of the Baſe together, and take half the Sum; then multiply that Half by the Side or Length, for the Content required.

Note, That if the Baſe be Triangular, or in the Form of a Pentagon, *&c.* you muſt add all the Sides together, and take half thereof, and multiply that Half into the Length for the Content.

Then if you would add the Content of the Baſe to the Content of the Outſide, you muſt find the Content thereof, as is before taught, *Prop.* 5, for any of the like formed Figure, and add it to the Content of the Outſide.

PROP. XXV. *Fig.* Q.

TO find the ſuperficial Content of a Globe or Sphere.

RULE.

Multiply the Diameter by the Circumference, and the Product will be the ſuperficial Content of the round Body or Globe.

EXAMPLE.

Let the Diameter be 14 Feet, the Circumference will be 44 Feet, which being multiplied one by the other, the Product is 616 Feet, for the Content of the Superficies of the Globe.

Or find the Content of a Circle that hath the ſame Diameter as the Globe, and multiply that Content by 4, and the Product is the ſuperficial Content required.

PROP. XXVI.

TO find the ſuperficial Content of a Segment of a Globe or Sphere.

The Superficies of any Segment of a Globe, is the Superficies of the remaining Portion, as the Portion of the Axis or Diameter cut off is to the remaining Portion of the ſame.

EXAMPLE.

Let *Fig.* Q be a Segment of a Globe given *e g f*, whoſe Part of the Diameter is 5 Feet; and the whole Diameter 14 Feet; and let the ſuperficial Content of the circular Part be required.

Say by the *Rule of Three*; If 14 gives 616, what will 5 give? Multiply 616 by 5, the Product is 3080; which divided by 14, gives 220 Feet for the ſuperficial Content of the Segment, or Part of the Globe.

CHAP. V.

Of Meaſuring SOLIDS.

BY Meaſuring of Solids, is meant the meaſuring of Stone, Timber, Digging of Earth, and all Solid Bodies whatſoever.

As a Superficies conſiſts of Length and Breadth, ſo a Solid Body conſiſts of Length, Breadth, and Depth (or Thickneſs).

And as in *Superficies* you only multiply the Length by the Breadth, for the Content; ſo in Meaſuring of Solids you muſt firſt multiply the Breadth by the Length, for the gaining the ſuperficial Content; and then multiply that Product by the *Depth* of the Solid Body, and the Product is the Solid Content.

PROP.

PROP. I. *Fig.* 1. *Plate* III.

To find the ſolid Content of a Cube; as in Fig. 1. *being a Cube* 12 *Inches in Length,* 12 *Inches in Breadth, and* 12 *Inches in Depth, whoſe ſolid Content is required.*

Firſt, multiply 12 Inches the Length, by 12 Inches the Breadth, and the Product is 144 Inches for the ſuperficial Content; this multiplied by 12 Inches, the Depth, produces 1728 Inches for the Solid Content of that Cube, which is one Solid Foot.

EXAMPLE.

	Inches.
The Length	12
The Breadth	12
	24
	12
The Superficial Content is	144
Which multiplied by the Depth	12
	288
	144
The Solid Content required	1728

PROP. II. *Fig.* 2.

TO meaſure the Solid Content of a long Cube, or Parallelopepidon, as Fig. 2.

EXAMPLE.

Suppoſe the Parallelopepidon given, be 6 Feet long, 10 Inches wide, and 7 Inches in Depth; what is the Content?

Multiply 6 Feet the Length by 10 Inches the Breadth, the Product is 60. Secondly, Multiply this Product by 7 Inches the Depth, which gives 420. Thirdly, Multiply this laſt Product by 12, and divide the Product thereof by 1728 (the Cubical Inches in a Solid Foot), and it gives 2 Feet and $\frac{1584}{1728}$ for the Content. *See the Work.*

The Length 6 Feet
The Breadth 10 Inches
60
The Depth 7 Inches
420
12 Inches
840
420

The Inches in a ſolid Foot 1728) 5040 (2 Feet
3456

The Inches in a Quarter Foot 432) 1584 (3 Quarters 288 Inches
1296

Remainder 288 Inches.

PROP. III. *Fig.* 3.

TO meaſure the ſolid Content of a Priſm, or Triangular Solid.

RULE.

Firſt, Find the ſuperficial Content of one End, (which is a Triangle, as is taught before in Superficies) then multiply that Content by the Length, and the Product is the Solidity required.

PROP. IV. *Fig.* 4.

TO meaſure the ſolid Content of a ſtrait Piece of Timber or Stone, terminated at both Ends with two equal Pentagons.

RULE.

Firſt, Find the ſuperficial Content of the Pentagon, as before is taught in Superficies, and multiply that Content by the Length, and the Product is the ſolid Content required.

P R O P. V. *Fig.* 5.

TO meaſure the Solid Content of a ſtrait Piece of Timber, or Stone, that is ſquared, being bigger at one end than the other.

R U L E.

Firſt, Find the Content of the biggeſt End. Secondly, Find the Content of the leſſer End. Thirdly, Multiply one Content by the other. Fourthly, From that Product extract the Square Root. Fifthly, Add this ſquare Root, and the Content of both Ends, into one Sum. Sixthly, Multiply this Sum by one third Part of the Length, and the Product is the Solid Content required.

P R O P. VI.

TO meaſure the ſolid Content of a Pyramid, whoſe Baſe is an equilateral Triangle, or a Square, or in the Form of a Pentagon, as Fig. 6. *alſo to find the Content of a Cone.*

R U L E.

Firſt, Find the Superficial Content of their Baſes (as is taught before, for any of the like formed Figures in *Superficies)* and Multiply that Content by one third Part of the Heighth, and the Product is the Content required.

P R O P. VII.

TO find the ſolid Content of a Cylinder, as Fig. N.

By a Cylinder is meant ſuch a *like* Solid as is uſed in Gardens for the rolling of Walks. To meaſure which Solid,

Firſt, Find the Content of the Baſe (as before taught), which Content being multiplied by the Length of the Cylinder, the Product is the Content required.

P R O P. VIII.

TO meaſure the Segment of a Cone, which may well be repreſented by a Tree that grows taper or diminiſhing, as Fig. 7.

R U L E.

RULE.

For finding the Content of ſuch a formed Figure, you muſt have recourſe to the Rule delivered in the Fifth Propoſition hereof: For the ſame Rule that ſerves for taper'd ſquare Timber, ſerves alſo for round Timber, or Bodies whoſe Baſes or Circles at the Ends are unequal.

PROP. IX.

LET Fig. Q be a Sphere, or Globe, whoſe Axis a b *is* 12 *Feet: What is the ſolid Content thereof?*

RULE.

As 21 is to 11, or as 42 to 22, So is the Cube of the Diameter or Axis of the ſolid Content required.

EXAMPLE.

Feet.
The Axis is 12, and the Square of it is — 144
Which multiply by the Axis —— 12
The Cube of the Axis is — 1728

Then ſay, by the Rule of Three, If 21 give 11, what will (the Cube of the Diameter) 1728 give?

Place the Numbers in order thus — 21 11 1728

Multiply the third Number by the ſecond Number 11, and divide the Product by the firſt Number 21, and the Quotient is 905 Feet and $\frac{3}{21}$ of a Foot, the Content required.

11
1728
1728
Feet.
21)19008(905 $\frac{3}{21}$
189
108
105
3

PROP.

PROP. X. Fig. Q.

THE ſolid Content of a Globe or Sphere being given, to find the Diameter or Axis.

RULE.

As 22 is to 42, So is the Solid Content given to the Cube of the Diameter, whoſe Length is required.

EXAMPLE.

Multiply the given Content by 42, and divide the Product by 22, the Cube Root of the Quotient is the Diameter ſought.

PROP. XI.

SUPPOSE in Fig. Q e g f *were the Segment of a Sphere, what is the ſolid Content thereof?*

RULE.

Firſt, Increaſe the Altitude of the other Segment not given by half the Axis.

Then ſay, by the Rule of Three, As the Altitude of the other Segment not given, is to the Height of the given Segment *g* 5; So is the Altitude of the other Segment 5 *h*, to a fourth Proportional.

Secondly, Square half the Chord Line *e f*, and multiply the Square of that half Chord by the fourth Proportional found by the firſt Work.

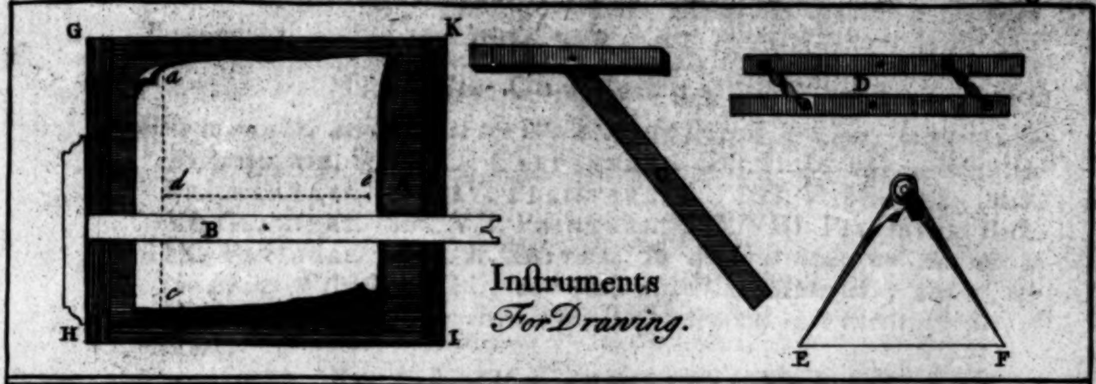
Then ſay, by the Rule of Three, As 21 is to 22; So is the Product of the Square of half the Chord of the given Segment, multiplied by the fourth Proportional (found as above) to the ſolid Content of the given Segment *e g f*.

Having gone through the Menſuration of Superficies and Solids, I ſhall now return to the Building, and conſider of the ſeveral Meaſures that Workmen uſe in taking their Dimenſions. But, firſt, I ſhall give you a Table of *Engliſh* Meaſures uſed in Land and Buildings.

A TABLE *of* Engliſh *Meaſures uſed in Lands and Buildings.*

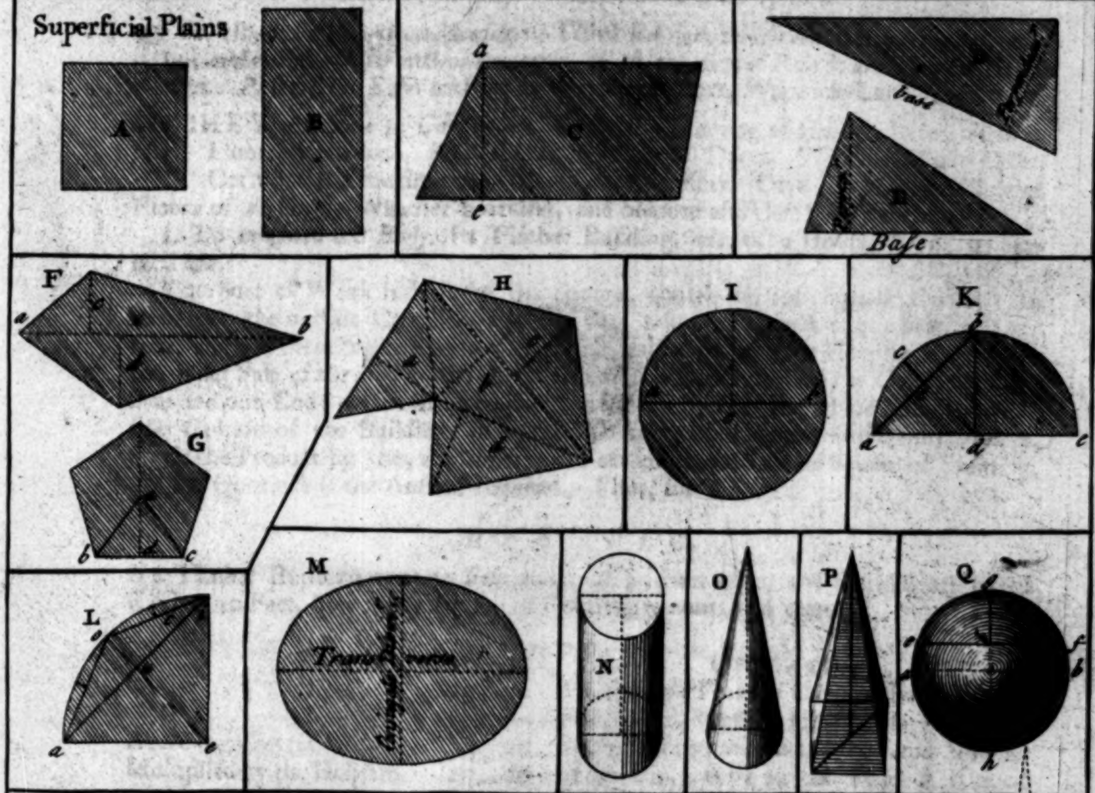
1. A Geometrical Pace is 5 Feet in Length.
2. A Geometrical Perch is 10 Feet in Length.
3. A Statute Pole or Perch is 16 $\frac{1}{2}$ Feet in Length.
4. A ſquare Statute Pole or Perch is 272 $\frac{1}{4}$ ſquare Feet.
5. A Woodland Pole or Perch is 18 Feet in Length.
6. A Square Woodland Pole is 234 ſquare Feet.
7. A Foreſt Pole or Perch is 21 Feet in Length.
8. Four Statute Perches is one Chain's Length.
9. Ten Chain's Length is a Furlong, or Acre's Length.
10. Four Chain's Length is an Acre's Breadth.
11. Forty ſquare Perches is a Rood, or a Quarter of an Acre.
12. Four Roods, or 160 Perches is one Acre.
13. A Hide of Land is 100 Acres.
14. A Square Foot is 144 ſquare Inches.
15. A cubical Foot is 1728 cubical Inches.
16. A ſquare Yard is 9 ſquare Feet.
17. A cubical Yard is 27 cubical Feet.
18. A Square is 100 ſquare Feet.
19. A Load of rough Timber is 40 Feet.
20. A Load of ſquared Timber is 50 Feet.
21. A Load of 1 Inch Plank is 600 ſquare Feet.
22. A Load of 1 $\frac{1}{2}$ Inch Plank is 400 ſquare Feet.
23. A Load of 2 Inch Plank is 300 ſquare Feet.
24. A Load of 2 $\frac{1}{2}$ Inch Plank is 240 ſquare Feet.
25. A Load of 3 Inch Plank is 200 ſquare Feet.
26. A Load of 3 $\frac{1}{2}$ Inch Plank is 170 ſquare Feet.
27. A Load of 4 Inch Plank is 150 ſquare Feet.
28. A Load of Statute Bricks is 500.
29. A Load of Plain Tiles is 1000.
30. A Load of Lime is 32 Buſhels.
31. A Load of Sand is 36 Buſhels.
32. A Hundred of Lime is 35 Buſhels.
33. A Hundred of Deals is 120.
34. A Hundred of Nails is 120.
35. A Thouſand of Nails is 1200.
36. A Ton of Iron is 2240 Pound Weight.
37. A Fodder of Lead is 19 Hundred $\frac{1}{2}$, or 2184 Pound.
38. A Hundred of Lead is 112 Pound Weight.
39. A Table of Glaſs is 5 Feet, and 45 Tables is a Caſe, but of NEWCASTLE, and NORMANDY Glaſs, 25 Tables is a Caſe.

Plate 3.



Instruments For Drawing.

Superficial Plains



SOLIDS

Fig. 1.

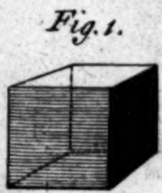


Fig. 2.

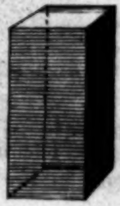


Fig. 3.

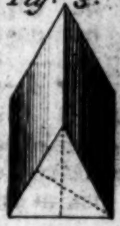


Fig. 4.

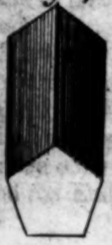


Fig. 5.

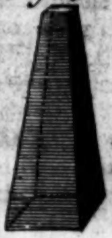


Fig. 6.

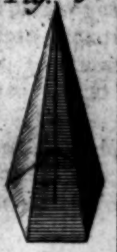
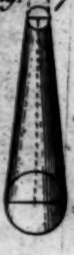


Fig. 7.



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CHAP. VI.

The CONTENTS.

How to meaſure and eſtimate the Work of the ſeveral Artificers concerned in Buildings, viz. Sect. I. *Of* CARPENTERS. Sect. II. JOINERS. Sect. III. BRICKLAYERS. Sect. IV. PLAISTERERS. Sect. V. MASONS. Sect. VI. GLAZIERS. Sect. VII. PAINTERS. Sect. VIII. PLUMBERS. Sect. IX. PAVIOURS. Sect. X. SMITHS. *To which is added an Account of the Prices of the ſaid Works, and their reſpective Materials; and of the Quantity of Materials required to the Performance of each particular Sort of Work.*

SECT. I. *Of* CARPENTERS *Work.*

☞ *See* Hoppus's *Practical Meaſurer*, Third *Edition, which contains many* new, uſeful, *and* curious *Obſervations concerning the Meaſuring of* Rough *and* Hewen TIMBER. *Printed for* E. Wickſteed *in* Warwick-Court, Warwick-Lane, LONDON.

THE Work done by *Carpenters*, are chiefly Framing of Houſes, Barns, Stables, Floors, Partitions, Roofs, *&c.* making of Doors, Windows, Stair-Caſes, Corniſhes, Frontiſpieces, Modillion-Corniſhes, Cove-Eaves, and boarded Floors of all Sorts, Weather-boarding, and boarded and cleft Pale-Fencing.

1. To meaſure the *Body* of a Timber Building, *viz.* of a Houſe, Barn, or Stable, *&c.*

This Sort of Work is done by the Square, containing 100 ſuperficial Feet. In meaſuring the outſide Carcaſs of a Houſe, *&c.* take the Length of one Side, and one End, and add them together, and their Sum, multiplied into the Heighth taken from the under Side of the Sill, to the upper Side of the Raiſing, gives the Content of one Side and one End; which being doubled, is the Content of the whole Body, or outſide Carcaſe of the Building, in Feet. To bring the Content found into Squares, divide the Product by 100, the ſuperficial Feet contained in one Square of Framing, and the Quotient is the Anſwer required: Thus, for

EXAMPLE.

If a Timber Building were 50 Feet long and 25 Feet wide, and the Heighth to the Raiſing 20 Feet, how many Square of Framing is contained therein?

Length	50	00
Breadth	25	00
Added together, is	75	00
Multiplied by the Heighth	20	00
	1500	00
	1500	00
Double for both Sides	3000	00

OPERATION.

Multiply 75 Feet the Length of one Side and End, by 20 Feet the Height, the Product is 1500 Feet; to which add the ſame Number or multiply it by 2, the Product is 3000 Feet, or 30 Square, the Content required. And to ſave the Trouble of dividing the Product by 100, to bring it into Squares, cut off 2 Places of Figures thus, 30,00, and you have for Anſwer 30 Squares; and ſo of any other.

2. Of *Roofs*. This Sort of Work is alſo done by the Square of 10 Feet ſquared, or 100 ſuperficial Feet. The Particulars to be obſerved in meaſuring of which, are, that let the Roof be true Pitch or not, and the Ends thereof Gable or Hip'd, they

may

may be either of them meaſured by this general Rule, *viz.* Multiply the Length of the Building by the Length of the Rafter, and twice that Product is the Content in Feet.

EXAMPLE.

In the aforeſaid Building of 50 Feet long, and 25 Feet wide, admit the Roof to be true Pitch, *viz.* the Length of the Rafter equal to ¾ of the Breadth of the Building, or 18 Feet 9 Inches.

The Length of Building	50	0
The Length of Rafter	18	9
	400	0
	50	0
	900	0
	37	6
Contents of one Side	937	6
	2	
Contents of the whole	18,75	

OPERATION.

Multiply 50 Feet the Length of the Building, by 18 Feet 9 Inches the Length of the Rafter; and the Product is 937 Feet 6 Inches the Contents of one Side; which doubled or multiplied by 2, the Product is 1875 Feet, or 18 Square ¾, which is the Contents of the whole Roof.

3. To meaſure the *Gable End* of a Houſe, *&c.* obſerve this Rule, multiply the Perpendicular by Half the Baſe or Breadth of the Building, or the whole Baſe by Half the Perpendicular, and the Product is the Content.

EXAMPLE.

In the Gable End of the above-mentioned Roof, the Perpendicular is 14 Feet, and the Baſe 25 Feet, what is the Content?

Half the Baſe	12	6
Perpendicular	14	0
	168	0
	7	0
Contents	1,75	0

OPERATION.

Multiply 12 Feet 6 Inches Half the Baſe, by 14 Feet the whole Perpendicular, and the Product is 175 Feet, which is 1 Square and ¾.

Note, That the ſame Rule will hold good for meaſuring the *Hip End* of a Roof, by obſerving that the Length of the Rafter, in this Caſe, is the Perpendicular.

N. B. *The Rafters, Feet, and Eves-board, are meaſured* per *Foot running.*

4. Of *Floors.* In naked Flooring, you are to allow 7 or 10 Inches for the Length of the Joiſt laid in the Wall.

In boarded Flooring, you muſt take your Dimenſions to the very extreme Parts; out of which, Deductions muſt be made for Stair-Caſes, Chimnies, *&c.*

5. *Weather-boarding* is done by the Yard ſquare, and ſometimes by the Square, containing 100 ſuperficial Feet.

6. *Framed-partitions* are meaſured by the Square, containing 100 ſuperficial Feet.

7. *Boarded-partitions* are alſo meaſured by the Square, out of which, you muſt

deduct the Doors and Windows contained therein, except they are agreed to be included.

8. *Windows* are generally made and valued by the Foot, ſuperficial Meaſure, and ſometimes by the Window. When they are meaſured, the Dimenſions muſt be taken in Feet and Inches, from the under Side of the Sill, to the upper Side of the Cap-piece, for the Heighth; and for the Breadth, from Outſide to Outſide of the Jaumbs; and the Product of the Multiplication, is the ſuperficial Content.

9. *Stair-caſes* are meaſured by the Foot ſuperficial, and the Dimenſions are taken with a String girt over the Rafter and Tread, and that Length or Girt, being multiplied by the Length of the Step, the Product is the ſuperficial Content.

10. *Door-caſes* are meaſured by the Foot ſuperficial, and the Dimenſions muſt be taken with a String girt round the Architrave and Inſide of the Jaumbs, for the Breadth; and for the Length, add the Length of the two Jaumbs, to the Length of the Cap-piece, taking the Breadth of the Opening for the Length thereof, and the Product of their Multiplication, is the ſuperficial Content.

11. *Framed-doors* are meaſured by the Yard ſquare, containing nine ſquare Feet, and if of whole Deal, they are allowed Work and half Work; or double Work, if of two Inch-ſtuff, in Conſideration of their being wrought on both Sides.

12. Note. *Window-ſhutters are meaſured and valued in the ſame Manner as Doors.*

13. *Modillion Corniſhes, Coves,* &c. are generally meaſured and valued by the Foot ſuperficial. Their Dimenſions, in reſpect to the Breadth or Heighth, is taken with a String girt into the Mouldings, and that Dimenſions, multiplied by the Length, is the ſuperficial Content.

14. *Fencing* of all Sorts is done by the Rod, lineal Meaſure, containing ſixteen Feet and a Half.

15. For the Prices of rough Timber uſed in Building and not framed (Sawing included) in *London*, at 2 *s.* 8 *d.* in Oak, and 2 *s.* in Fir per Foot Cube.

16. *Ditto*, framed in Roofs, naked Flooring, Partitions, &c. at 3 *s.* 3 *d.* in Oak, and 2 *s.* 2 *d.* in Fir per Foot Cube.

17. *Ditto*, in Door-caſes and Window-frames plained and framed, at 3 *s.* 10 *d.* in Oak, and 2 *s.* 8 *d.* in Fir per Foot Cube.

18. To Work only for Framing naked Flooring with binding Joiſt in *London*, 9 *s.* per Square in Oak, 8 *s.* per Square in Fir, or 100 Feet ſuperficial Meaſure.

19. *Ditto*, with Girders and Joiſts in *London*, 8 *s.* per Square in Oak, and 7 *s.* per Square in Fir.

20. To Work only of Framing ſingle Roofs, Plates included, 8 *s.* per Square in Oak, 6 *s.* per Square in Fir, at *London*.

21. *Ditto*, framed with Purloins and Collar-beams, at *London*, 12 *s.* per Square in Oak, and 10 *s.* per Square in Fir.

22. To *extra* Work in Truſſing of Beams in *London*, 6 *d.* per Foot in Oak, 4 *d.* per Foot in Fir, running Meaſure.

23. Aſhlering or Ceiling Floors at *London* with Stuff 4 by 3, at 16 *s.* per Square.

24. For Framing the outſide Carcaſe and Floors of a Houſe, Hewing, Sawing, and Workmanſhip, at 10 *s.* per Square in *Ipſwich*.

25. *Ditto*, Workmanſhip only, 4 *s.* 6 *d.* per Square.

26. To framed Partitions, Hewing, Sawing, and Workmanſhip in *Ipſwich*, from 7 *s.* to 8 *s.* per Square.

27. *Ditto*, Workmanſhip only, from 3 *s.* 6 *d.* to 4 *s.* per Square.

28. To framed Roofs, Hewing, Sawing, and Workmanſhip, according to the Scantling of the Timbers, from 8 *s.* to 10 *s.* per Square in *Ipſwich.*

29. *Ditto*, Workmanſhip only, from 4 *s.* 6 *d.* to 5 *s.* per Square.

30. For Framing the outſide Carcaſe of a Houſe with old Timber, made ſtreight on both Sides, at *Ipſwich*, Workmanſhip only, at 6 *s.* per Square.

31. Oak-Timber for Building, cut to any Scantling, at *Ipſwich*, 2 *s.* 6 *d.* per Foot Cube.

32. To Framing of Barns or Stables, Hewing, Sawing, and Workmanſhip, according to the Roughneſs and Scantling of the Timber, at *Ipſwich*, from 8 *s.* to 9 *s.* per Square.

33. *Ditto*, Workmanſhip only, from 3 *s.* 6 *d.* to 4 *s.* per Square.

Note. *See the Table of* Scantlings of Timber *at the End of this Chapter.*

34. To lay Barn-Floors of Oak-Joiſts, and 2 Inch Oak-Plank, at *Ipſwich*, 3 *l.* 10 *s.* per Square.

35. *Ditto*, Workmanſhip only, 6 *s.* per Square.

36. *Ditto*, Hewing and Sawing included, according to the Roughneſs of the Timber, from 12 *s.* to 14 *s.* per Square.

37. To lay Barn-Floors with Oak-joiſts, and 2 Inch double Deal, at *Ipſwich*, 2 *l.* 10 *s.* per Square.

38. *Ditto*, Workmanſhip only, 5 *s.* per Square.

39. To lay Barn-floors with Oak-joiſts, and 3 Inch Deal, at *Ipſwich*, 2 *l.* 18 *s.* per Square.

40. *Ditto*, Workmanſhip only, 5 *s.* 6 *d.* per Square.

41. Rafters Feet and Eves-boards, at *London* and *Ipſwich*, 4 *d.* per Foot running Meaſure.

42. Guttering and Bearers of Oak, in *London*, 8 *d.* per Foot ſuperficial.

43. *Ditto*, of Fir, 6 *d.* per Foot.

44. Streight Mouldings of Deal, in *London*, at 12 *d.* per Foot ſuperficial.

45. Plain outſide Corniſhes out of whole Deal, at *London* and *Ipſwich*, at 9 *s.* per Foot ſuperficial.

46. *Ditto*, with plain Modillion-Corniſhes, in *London* and *Ipſwich*, at 18 *d.* per Foot ſquare.

47. *Ditto*, Workmanſhip, 10 *d.* per Foot ſquare.

48. Dentils Corniſhes, at 18 *d.* per Foot ſuperficial.

49. *Ditto*, Workmanſhip only, 12 *d.* per Foot ſuperficial.

50. Dorick Entablature of Deal, with its proper Ornaments, in *London*, at 2 *s.* per Foot ſuperficial.

51. Centerings in Openings, as Doors, Windows, *&c.* in *London*, 3 *d.* ½ per Foot ſquare.

52. *Ditto*, to plain Arches of Vaults, at 10 *s.* per Square.

53. Groin-Centering, regular or irregular, in *London*, at 18 *s.* per Square.

54. Cove Bracketting of Oak, at 6 *d.* per Foot ſuperficial.

55. *Ditto*, ——— of Fir, at 5 *d.* per Foot ſuperficial.

56. *Ditto*, to common plaiſtered Corniſhes, in *London*, at 4 *d.* per Foot ſquare.

57. *Ditto*, to Modillions, at 5 *d.* per Foot ſquare.

58. Steps of common Strings, and String-boards and Bearers included, in *London*, of Oak, at 9 *d.* per Foot ſuperficial, on the Raiſer and Tread.

59. *Ditto*, of Fir, 6 *d.* per Foot ſuperficial.

60. *Ditto*, better Sort of Fir, in *London*, at 1 *s.* 3 *d.* per Foot running.

61. *Ditto*, of ſecond-beſt Boards, Strings, Bearers, and plain Brackets included, at 9 *d.* per Foot ſuperficial.

62. *Ditto*, with clean Deal and carved Brackets, from 12 *d.* to 18 *d.* per Foot ſuperficial.

63. To common Joiſting and Boarding to half Paces in *London*, at 8 *d.* per Foot ſuperficial.

64. *Ditto*, of a better Sort, at 9 *d.* per Foot ſuperficial.

65. Rails and Balluſters 2 Inches ſquare, at 2 *s.* per Foot running.

66. *Ditto*, 3 Inches ſquare, at 2 *s.* 6 *d.* per Foot running.

67. *Ditto*, 4 Inches ſquare, at 3 *s.* per Foot running.

68. To turned Newels and cap'd, at 2 *s.* 6 *d.* per Foot running.

69. *Ditto*, turned Newels and cap'd ſquare, at 3 *s.* per Foot running.

70. If Circular or Ramping, allow the Price double, or otherwiſe double Meaſure, which is the ſame. And this Rule muſt be obſerved for all circular Works in general.

71. To rough whole Deal boarded Floors, ſhot clear of Sap, in *London* and *Ipſwich*, at 25 *s.* per Square.

72. *Ditto*, Workmanſhip only, at 3 *s.* per Square.

73. Whole Deal boarded Floors liſted and ſhot clear of Sap, at 27 *s.* per Square.

74. Workmanſhip only, at 3 *s.* 6 *d.* per Square.

75. Folding Joint-boarded Floors, plained, liſted, and ſhot clear of Sap, at 30 *s.* per Square.

76. Workmanſhip only, at 5 *s.* per Square.

77. Common ſtreight-joint boarded Floors, clear of Sap, at 40 *s. per* Square.

78. Workmanſhip only, at 7 *s.* 6 *d.* per Square.

79. Second-beſt boarded Floors nailed, at 2 *l.* 10 *s.* per Square.

80. Workmanſhip only, at 9 *s.* per Square.

81. Second-beſt boarded Floors dowled, at 3 *l.* 5 *s.* per Square.

82. Workmanſhip only, at 12 *s.* per Square.

83. Clean Deal boarded Floors dowled, at 5 *l.* per Square.

84. Workmanſhip only, at 18 *s.* per Square.

85. *Ditto*, of long Boards, 15 Feet long, and upwards, at 6 *l.* per Square.

86. Workmanſhip only, at 1 *l.* 1 *s.* per Square.

87. Second-beſt Floors taken up, relay'd, and plained over, at 16 *s.* per Square.

A TABLE, *which ſhews how many* 10 *or* 12 *Feet Boards will compleat a Square of Flooring at ſix ſeveral Gauges.*

	Inch Gauge.	10 Feet Boards.		Superficial Inches over.		Inch Gauge.	12 Feet Boards.		Superficial Inches over.
At	5	24	and	0	At	5	20	and	0
	6	20	and	0		6	16	and	48
	7	17	and	10		7	14	and	24
	8	15	and	0		8	12	and	48
	9	13	and	30		9	11	and	12
	10	12	and	0		10	10	and	0

88. Boarding with rough Slit Deal, at 14 *s.* per Square.

89. Workmanſhip only, at 2 *s.* 6 *d.* per Square.

90. Linings of Walls, Plugs and Nails included, in *London*, 18 *d.* per Yard.

91. Workmanſhip only, at 9 *d.* per Yard.

92. *Ditto*, groved, tongued, and plained, at 2 *d.* ½ per Foot ſuperficial.

93. Weather-boarding Feather-edged, Nails included, in *London*, at 1 *s.* 6 *d.* per Yard.

94. Workmanſhip only, 3 *d.* per Yard.

95. *Ditto*, in *Ipſwich*, the Boards plained and beaded, at 16 *s.* per Square.

96. Workmanſhip only, at 2 *s.* 6 *d.* per Square.

97. Rough Weather-boarding of Feather-edged Deal, Nails included, in *Ipſwich*, at 14 *s.* 6 *d.* per Square.

98. Workmanſhip only, 12 *d.* per Square.

99. Weather-boarding with Oak Boards, in *Ipſwich*, Nails included, at 22 *s.* per Square.

100. Workmanſhip only, at 1 *s.* 6 *d.* per Square.

101. *Ditto*, Hewing and Sawing included, according to the Roughneſs of the Timber, from 6 *s.* to 7 *s.* per Square.

102. Whole Deal Boarding plained on one Side, nailed againſt Studs, at 2 *s.* 6 *d.* per Yard ſquare.

103. Workmanſhip only, at 10 *d.* per Yard ſquare.

104. *Ditto*, plained on both Sides, at 3 *s.* per Yard.

105. Workmanſhip only, at 12 *d.* per Yard.

106. *Ditto*, groved, tongued, ledged or battened, at 3 *s.* 6 *d.* per Yard ſuperficial.

107. Workmanſhip only, at 1 *s.* 3 *d.* per Yard.

108. *Ditto*, lined with Slit-Deal, at 5 *s.* per Yard.

109. Workmanſhip only, at 2 *s.* per Yard.

110. Whole-Deal and Slit-Deal Partitions groved and plained on both Sides, at 2 *s.* per Yard ſingle Meaſure.

111. Workmanſhip only, 10 *d.* per Yard.

112. Two-Inch Stuff plained on one Side, at 3 *s.* per Yard.

113. Workmanſhip only, at 12 *d.* per Yard.

114. *Ditto*, plained on both Sides, at 3 *s.* 8 *d.* per Yard ſingle Meaſure.

115. Workmanſhip only, 1 *s.* 5 *d.* per Yard.

116. *Ditto*, groved, tongued, ledged or battened, at 4 *s.* 6 *d.* per Yard.

117. Workmanſhip only, at 1 *s.* 8 *d.* per Yard.

118. Two-Inch Oak-plank lifted and ſhot clear of Sap, in *London*, at 8 *d.* per Foot.

119. *Ditto*, of Fir, at 6 *d.* per Foot.

120. Three-Inch Oak-plank, at 9 *d.* per Foot.

121. *Ditto*, of Fir, at 6 *d.* per Foot.

122. Four-Inch Oak-plank, at 14 *d.* per Foot.

123. *Ditto*, of Fir, at 10 *d.* per Foot.

124. Ground-Ceiling, the Scantlings 6 by 7, Stuff and Work, in *Ipſwich*, at 10 *d.* per Foot running.

125. Workmanſhip only, from 3 *d.* to 4 *d.* per Foot running.

126. Whole-Deal Coolers for Brewing, in *Ipſwich*, at 12 *d.* per Foot ſuperficial.

127. Squares for *Ditto*, with 2 Inch Oak-plank, Work, and all Materials, in *Ipſwich*, at 1 *s.* 6 *d.* per Foot Cube.

128. *Ditto*, with 3 Inch Oak-plank, at 2 *s.* 6 *d.* per Foot Cube.

129. *Ditto*, with 3 Inch Deal, at 1 *s.* 6 *d.* per Foot Cube.

130. Fencing with rough Whole-Deal, Poſts and Rails, in *London*, the Stuff to be returned, at 13 *s.* per Square.

131. Palliſading Poſts of Oak 6 Inches ſquare, Rails 5 Inches, Pales 3 Inches by 1 ¼ of Oak, in *London*, at 4 *s.* per Foot running.

132. *Ditto*, of Fir, at 3 *s.* per Foot running.

133. Four-Feet cleft Pale-fencing, with 10 Feet Rails, when a large Quantity, according to the Nature of the Soil, *from* 8 *s.* 6 *d.* to 9 *s.* per Rod.

134. *Ditto*, Workmanſhip, according to the Nature of the Soil it is in, from 2 *s.* to 2 *s.* 6 *d.* per Rod.

135. *Ditto*, if but a ſmall Quantity, it cannot be done for leſs than 10 *s.* per Rod.

136. Five Feet cleft Pale-fencing, with 9 Feet Rails, and 3 Rails in a Loop, if a large Quantity, according to the Nature of the Soil, from 12 *s.* to 12 *s.* 6 *d.* per Rod.

137. Workmanſhip only, from 2 *s.* 6 *d.* to 3 *s.* per Rod.

138. *Ditto*, if a ſmall Quantity, it is worth from 13 *s.* to 13 *s.* 6 *d.* per Rod.

139. Park-paleing, with cleft Pales, from 12 *s.* to 14 *s.* per Rod.

140. Workmanſhip for *Ditto*, including Hewing and Riving, in *Ipſwich*, from 2 *s.* 6 *d.* to 3 *s.* per Rod.

141. *Ditto*, with three Rails in a Loop, from 16 *s.* to 18 *s.* per Rod.

142. Workmanſhip only for *Ditto*, from 3 *s.* 6 *d.* to 4 *s.* per Rod.

143. *Ditto*, with ſawn Pales, from 20 *s.* to 24 *s.* per Rod.

144. Work to *Ditto*, Hewing and Sawing included, from 7 *s.* to 8 *s.* per Rod.

145. Pole Gates cleft, making, ſetting up the Poſts, and hanging the Gate, Work only, 4 *s.* per Gate.

146. *Ditto*, Work and Stuff, Poſt included, at 12 *s.* per Gate.

147. *Ditto*, ſawed, with Poſts, making, hanging, *&c.* from 15 to 20 *d.* per Gate.

148. *Ditto*, Work only, from 6 *s.* to 6 *s.* 6 *d.* per Gate.

149. For boarded Fencing 6 or 7 Feet high, with rough Featheredge Slit-deal, from 18 *s.* to 20 *s.* per Rod.

150. Work only, from 3 *s.* 6 *d.* to 4 *s.* per Rod.

151. *Ditto*, plained and beaded, from 21 *s.* to 22 *s.* per Rod.

152. Workmanſhip only, from 4 *s.* to 4 *s.* 6 *d.* per Rod.

153. *Ditto*, Oak Boards plained and beaded, at 1 *l.* 10 *s.* per Rod.

154. Workmanſhip only, from 5 *s.* to 5 *s.* 6 *d.* per Rod.

155. Palliſading Poſt 6 Inches ſquare, upper Rails, 3 ½ by 4, the lower Rail 6 by 3, Pales 3 by 1, the Length of the Pales 4 Feet and ½, the Poſts to be 6 Feet above the Ground, ſo as to allow one Foot and Half under the lower Rail for Brickwork, and to be all of Oak; Carpenter's Work and Stuff only, at 2 *s.* 6 *d.* per Foot lineal.

156. *Ditto*, the Pales of Fir, 1 *s.* 6 *d.* per Foot.

157. Workmanſhip only, 1 *s.* per Foot running.

158. *Ditto*, with Inch and Half ſquare Pales of Oak, at 3 *s.* per Foot.

159. *Ditto*, the Pales of Fir, at 2 *s.* 6 *d.* per Foot.

160. Workmanſhip only, from 16 *d.* to 18 *d.* per Foot running.

161. Palliſado Gates, the framed Work of 2 Inch Oak, with Squares of flat Pales, from 9 *d.* to 10 *d.* per Foot ſuperficial.

162. Workmanſhip only, from 3 *d.* to 4 *d.* per Foot.

163. *Ditto*, with 3 Inch Stuff of Oak, at 1 *s.* per Foot ſuperficial.

164. Workmanſhip only, from 5 *d.* to 6 *d.* per Foot.

165. Whole deal Dreſſers, with Bearers and Shelves, in *London*, at 8 *d.* per Foot ſquare.

166. Dreſſers of 2 Inch Deal, with turned Columns and Bearers, at 12 *d.* per Foot.

167. *Ditto*, of 2 Inch and ½ Deal, with turned Columns and Bearers, at 14 *d.* per Foot.

168. Elm or Beech Dreſſers, in *London*, at 3 *s.* 6 *d.* per Foot Cube.

169. Six-Pannel Doors, ſquare on both Sides, out of 2 Inch Deal, in *London*, at 10 *d.* per Foot ſuperficial.

170. Four-Pannel Doors, Inch and ½ thick, ſquare on both Sides, at 9 *d.* per Foot.

171. Whole-deal Doors, ledged and meaſured on one Side, at 6 *d.* per Foot ſuperficial.

172. *Ditto*, plowed, tongued, and ledged, at 7 *d.* per Foot.

173. Slit-deal Doors plained and Linings, in *London*, at 3 *d.* per Foot ſuperficial.

174. Common Two-pannel Doors, about 6 Feet high, and 3 Feet wide, wrought with a quarter Round, and flat Pannels with Caſeings included, in *Ipſwich*, from 8 *s.* to 10 *s.* per Door.

175. Workmanſhip only, from 3 *s.* to 4 *s.* per Door.

176. Gates of whole Deal lined with whole Deal, at 9 *d.* per Foot ſuperficial.

SECT. II. *Of* JOINERS *Work, as* Wainſcoting, Saſhes, &c.

Wainſcoting is a Work generally done by the Joiners, and is meaſured by the Yard ſquare, and their Dimenſions are taken in Feet and Inches. Thus, they girt down every Moulding (with a String) contained between the Cieling and Floor, which they take for the Heighth of the Room, and the Circumference of the Room they take for the Length, deducting the Chimney from thence, if of *Stone*; but if *Wood*, no Deduction is made. The Seats of Windows, Cheeks, Sophetas, Linings, &c. are all to be taken by themſelves; alſo Doors, Window-ſhutters of whole Deal, are all allowed Work and half Work; or double Work, if of two Inch Stuff, in regard to their being worked on both Sides.

To make this yet more plain, I ſhall ſhew the Method of taking Dimenſions by an Example of one Room that is wainſcotted, which will be ſufficient for any Number of them. Suppoſe then for the Circumference of the Room, that the

	F.	I.	Products.		
South Side was	17	9			
Weſt Side	15	2			
North Side	17	6			
Eaſt Side	15	8			
The Advance or Sides of the Chimney	2	4			
Whole Round	68	5	763	11	10
Heighth	11	2			
Half of Shutters	6	2	29	3	6
3 Times for 3 Windows	3) 1	7			
Linings round the Windows three Times	19	2	52	8	6
	3) 0	11			
Linings to the Door	17	0	11	4	
	0	8			
Half Work of the Door	7	0	10	6	
	1	6			
	In	all	867	9	10
For the Chimney deduct	5	1	21	2	2
	4	2			
Feet in the whole			9)846	7	8
Yards in the whole			94	0	$7\frac{2}{3}$

which being divided by 9 (the Feet in a ſquare Yard) gives 94 Yards, 0 Feet, 3 Inches $\frac{2}{3}$, the Quantity of Wainſcoting in this Room as required.

Frontiſpieces are meaſured and valued by the Foot ſuperficial, and every Part thereof meaſured ſeparately, *viz.* the Architrave, Frieze, and Corniſh, each of them by themſelves, alſo the Pilaſters or Columns by themſelves; and, laſtly, add all the ſeveral Meaſurements together, and the Product is the Content of the Whole.

Note, *That in taking the Dimenſions, you muſt girt the Mouldings with a String.*

The Prices of Joiners *Work.*

1. Wainſcoting with *Norway* Oak, Stuff and Workmanſhip, in *London*, 7 *s.* per Yard ſuperficial.
2. Workmanſhip only, 2 *s.* per Yard.
3. Large Biſection Wainſcoting with *Dantzic* Stuff, at 6 *s.* per Yard.
4. Workmanſhip only, at 2 *s.* per Yard.
5. Ordinary Biſection Wainſcoting with Deal, at 4 *s.* per Yard.
6. Workmanſhip only, at 1 *s.* 6 *d.* per Yard.
7. Deal Wainſcoting with quarter round, and the Pannels raiſed with a Bead, in *London*, at 4 *s.* per Yard.
8. Workmanſhip only, at 1 *s.* 3 *d.* per Yard.
9. *Ditto*, with a quarter round, and Pannels raiſed ſquare, at 3 *s.* 9 *d.* per Yard.
10. Workmanſhip only, at 1 *s.* 2 *d.* per Yard.
11. *Ditto*, Quarter-round and flat Pannels, at 3 *s.* per Yard.
12. Workmanſhip only, at 12 *d.* per Yard.
13. Plain ſquare Deal Wainſcoting, at 2 *s.* 6 *d.* per Yard.
14. Workmanſhip only, at 9 *d.* per Yard.
15. All Mouldings whatever that are not wrought with common Planes, but worked by Hand (as the *Joiners* phraſe it) as Impoſt-mouldings, Baſes, Architraves, Pilaſters, Columns, Corniſhes, &c. are to be meaſured in ſuperficial Feet, and to allow for the ſame from 12 *d.* to 18 *d.* per Foot.
16. Workmanſhip only, from 6 *d.* to 9 *d.* per Foot, according to the Goodneſs of the Workmanſhip: Except there is an Agreement to meaſure theſe Mouldings in at the Price of the Wainſcoting, as is ſometimes done.
17. Inch and Half Wainſcot Saſhes in *London*, at 8 *d.* per Foot ſquare.
18. Workmanſhip only, 2 ½ *d.* per Foot.
19. *Ditto*, with Deal Caſe-frames, Wainſcot-pulley-pieces, and Oak-Soils to run double, at 1 *s.* 3 *d.* per Foot.
20. Workmanſhip only, at 3 *s.* per Frame.
21. *Ditto*, with right Wainſcot Frames, at 1 *s.* 8 *d.* per Foot.
22. Workmanſhip only, at 3 *s.* 6 *d.* per Frame.
23. Two Inch Wainſcot Saſhes, in *London*, at 11 *d.* per Foot.
24. Workmanſhip only, at 4 *d.* per Foot.
25. *Ditto*, with Deal Caſe-frames, Wainſcot-pulley-pieces, and Oak Soils, at 1 *s.* 8 *d.* per Foot.
26. Workmanſhip only, at 3 *s.* 6 *d.* per Frame.
27. *Ditto*, with right Wainſcot Frames, at 2 *s.* 4 *d.* per Foot.
28. Workmanſhip only, at 4 *s.* per Frame.
29. Inch and Half Deal Saſhes, in *London* and *Ipſwich*, at 7 *d.* per Foot ſuperficial.
30. *Ditto*, with Deal Caſe-frames, and Pulley-pieces of Deal, and Oak Soils, at 12 *d.* *per* Foot.

31. Girt and Lutheran Windows made of Oak, the Stuff 3 by 4, in *Ipſwich*, at 6 *d.* per Foot.

32. *Ditto*, of Fir, at 4 *d.* per Foot.

33. Workmanſhip only, from 1 *d.* ½ to 2 *d.* per Foot.

N. B. *In any of the above Articles, where there is any Carriage of the Materials required, it muſt be allowed for.*

SECT. III. *Of* BRICKLAYERS *Work.*

IN this Section I ſhall explain all that is needful for the performing of *Brickwork*; not only in the Method of Meaſuring, but alſo the *Prices* of the ſeveral Kinds of Work done by *Bricklayers*.

But firſt, it will be neceſſary to conſider the *Digging* out of the *Cellars* or *Foundations*, for till that be done, the *Brickwork* cannot be begun.

Digging then is a Work done by the Yard of *cubic* or *ſolid* Meaſure, containing 27 Feet, or 3 Feet every Way, *viz.* in *Length*, *Breadth* and *Depth*.

In taking Dimenſions they are not ſo exact as in other Works, for they rarely take them nearer than to the Quarters of Feet.

Admit, for *Example*, a Cellar or lower Part of a Building is to be performed, that is 45 Feet 3 Inches long, 21 Feet 6 Inches wide, and 6 Feet 3 Inches deep. What Number of Yards is therein?

	F.	I.			
The Length — —	45	3			
The Breadth — — — —	21	6			
	45				
	90				
Feet multiplied	945	0			
Feet by Inches — — —	5	3			
Ditto, — — — —	22	6			
Inches by Inches — — —		1	6		
	972	10	6		Superficial Content.
	6	3	0		The Depth.
Feet multiplied — — —	5832	0	0		
Feet by Inches — — —	5	0	0		
Feet by Parts — — —	0	3	0		
Feet by Inches — — —	243	0	0		
Inches by Inches — — —	0	2	6		
Inches by Parts — — —	0	0	1	6	
	6080	5	7	6	Solid Content.

So that the ſolid Feet contained in ſuch a Foundation, are 6080 Feet; which, to reduce into Yards, muſt be divided by 27. (the ſolid Feet in a Yard) thus:

27)

```
27)6080(225 Solid Yards
   54
   ——
    68
    54
    ——
    140
    135
    ———
Solid Feet 5 remains,
```

which is ſomething better than ⅙ Part of a Yard more. As for the Inches and Parts, they are always omitted.

I. The Digging Foundations in *London*, 5 *d.* per Yard Cube.

II. *Ditto*, and carrying away 1 *s.* 8 *d.* per Yard Cube.

Note, *The Price will differ according to the Variety of the Ground to be dug out, as Clay, Gravel, Loom, Flint, Chalk, &c. but is chiefly done from* 3 d. *to* 6 d. per *Yard. —But here obſerve, that the Charge of carrying away the Earth and other Rubbiſh, is to be conſidered and added accordingly.*

The principal Work in Building performed by Bricklayers, is Walling and Tyling; and what is to be obſerved therein is,

1. That the Meaſure by which Brickwork is meaſured, is a ſquare Rod, or 16 ½ Feet ſquare, equal to 272 Feet 3 Inches.

Note, *That although there be 272 Feet and a ¼ in a Rod of Brickwork at the Standard Thickneſs, yet Workmen in meaſuring of Brickwork, always reject the Quarter, and divide by 272 only.*

2. That the Manner of meaſuring Brickwork hath no Sort of Difference from any other ſuperficial Meaſure; if the Thickneſs be but equal to the Standard Thickneſs, *viz.* one Brick and a Half.

III. To reduce Brickwork of any Thickneſs to the Standard Thickneſs of one Brick and a Half.

RULE.

Multiply the Number of Feet contained in the ſuperficial Content of the Wall, by the Number of half Bricks that the Wall is in Thickneſs; which Product divided by 3, the Quotient is the true Content of Brickwork required, reduced to the Standard Thickneſs of one Brick and a Half.

IV. Obſerve the ſeveral Thickneſſes of the Walls, and that you make every Deduction out of its proper Thickneſs. Alſo, that when you meaſure two Walls that conſtitute an Angle, the Length of one muſt be taken to the Outſide, and the other to the Inſide.

V. When you meaſure Chimnies, meaſure them as a ſolid Wall, and deduct the Vacancy between the Jaumbs and the Mantle, the Funnels are allowed ſolid, in regard to the Trouble of them, and the pargetting the Inſide.

VI. For *Angle Chimnies*, ſuch as ſtand in a ſquare Corner, and are equal each Way from the Corner, obſerve this *Rule:* Multiply Half the Breadth of the Breaſt or Front, by the Heighth of the Story, and that Product by the Number of half Bricks contained in the Inches of the half Breadth of the Breaſt or Front, and divide this laſt Product by 3, then the Quotient will be the true reduced Content in Feet, out of which muſt be deducted the Vacancy as in ſquare Chimnies.

VII. If the Chimney do not ſtand equal from the Corner of the Room on both Sides, or the Corner be not ſquare, it is uſual to lay out the Angle parallel to the Walls, and take one Side of the Angle, and multiply by the Heighth of the Story, and Half the other Side of the Angle for the Thickneſs: Then proceed in every Reſpect as before directed, and it will give the true reduced Content required.

Remember to meaſure the Trimmers that ſupport the Hearths, taking the Length by the Girt of the Arching of them, accounting them half a Brick thick, ſo that if they are 6 *Feet long, and* 1 *Foot* 6 *Inches Girt, there is* 3 *Feet of reduced Brickwork therein.*

EXAMPLE.

Suppoſe a Chimney that ſtands in the Corner or Angle of a ſquare Room, be 7 Feet 6 Inches in Front, and the Heighth of the Story 10 Feet 6 Inches, and the Opening 3 Feet 6 Inches ſquare, and 18 Inches deep: How many Feet of reduced Brickwork are contained therein?

F. I.
10 6 Heighth of the Story.
3 9 Half the Front.

30 0
1 6
7 6
4 6

39 4 6
10 Half Bricks in 3 Feet 9 Inches, or half the Length of the Front.

3)393 9 0(131 9

3 6 The Opening.
3 6

9 0
1 6
1 6
3

12 3
4 Half Brick.

3)49 0(16 1 Reduced Feet in the Opening to be deducted.

131 9 The reduced Content of the Chimney.
16 1 Opening to be deducted.

115 8 The Contents required.

By the above Operation it appears, there are 131 Feet 9 Inches of reduced Brickwork in the Chimney; from which, if you ſubſtract 16 Feet 1 Inch, the Content of the Opening, you will find the Remains to be 115 Feet 8 Inches of neat Brickwork, the Content required.

Example of the Reduction of Brickwork.

Suppoſe a Wall, or the Addition of ſeveral Lengths of Walling to be 324 Feet, and the Thickneſs of two Bricks: How much reduced Brickwork is therein?

324 Superficial Content.
Multiplied by 4 The Number of half Bricks.

Divide by the Number of half Bricks in the Standard } 3)1296(432 Feet reduced.
12
..9
9
.6
6
0

By which you ſee there are 432 Feet of Brickwork reduced, and ſo of any other; which, to bring into Rods, obſerve this *Rule*. Let the Product be multiplied by 16 (which are the ſquare Quarters in a Foot) and then dividing by 4356, being the ſquare Quarters in a Rod, and the Anſwer is the Number of Rods, and the Remains (if any) divided by 16, will be the Feet therein: Thus in the Example before mentioned,

432 Superficial Content.
Multiplied by 16 The ſquare Quarters in a Foot.

2592
432

Square Quarters in a Rod 4356)6912(1 Rod
4356

Quarters in a Foot 16)2556(159
16

95
80

156
144

12

So that 432 ſuperficial reduced Feet is 1 Rod 159 Feet of Brickwork; and ſo of all other Sums.

VIII. The Materials required in a Rod of Brickwork, reduced to the Standard, are 4500 Bricks, 1 Hundred and a Quarter of Lime, and 2 Load and a Half of Sand. In ſound and new Work, a Bricklayer will lay a Thouſand Bricks in a Day, at which Rate, one Rod of Brickwork will amount to for Workmanſhip 16 *s.* per Rod, for Work and all Materials, 5 *l.* 10 *s.* or 6 *l.* per Rod.

There are other Kinds of Brickwork performed by the Foot Meaſure, and ſuch are Facia's, Arches over the Doors, Windows, *&c.* Architraves, Freezes, Corniſhes, Ruſtics, Returnes, *&c.* Piers, Columns, Pilaſters, *&c.* all which are valued according to the Goodneſs of the Work; but rubbed Arches of any Sort are done for 12 *d.* per Foot Workmanſhip only; but if the Workman find Materials 18 *d.* or 20 *d.* per Foot.

1. Red Stock Bricks in *London*, at 1 *l.* 10 *s.* per Thouſand.
2. Grey Stock Bricks in *London*, at 1 *l.* per Thouſand.
3. Place Bricks in *London*, at 14 *s.* per Thouſand.
4. Red and Grey Bricks mixed, in *Ipſwich*, at 1 *l.* per Thouſand.
5. Cutting Bricks, for rubbed and guaged Work in *Ipſwich*, from 40 *s.* to 2 *l.* 10 *s.* per Thouſand.
6. Plain Tiles in *London* and *Ipſwich*, at 1 *l.* per Thouſand.
7. Pan Tiles in *London*, at 3 *l.* per Thouſand.
8. *Ditto*, in *Ipſwich*, at 3 *l.* 10 *s.* per Thouſand.
9. *Dutch* glazed Pan Tiles in *Ipſwich*, at 10 s. per Hundred.
10. Gutter Tiles at 16 *s.* per Hundred.
11. Brickwork done with all Place Brick in *London*, at 5 *l.* 5 *s.* per Rod, or 272 Feet, at the Statute Thickneſs of a Brick and Half thick.
12. *Ditto*, with the Fronts faced with Grey Stock Bricks, at 5 *l.* 10 *s.* per Rod.
13. Brick Walls in *Ipſwich*, with common Bricks, at the loweſt Price, 6 *l.* 12 *s.* per Rod.
14. Brick Fronts, with rubbed Returns, excluſive of the Arches, in *Ipſwich*, from 7 *l.* to 8 *l.* per Rod.

Whereas there is a wide Difference in the Value of one Rod of Brickwork, according to the various Cuſtoms of Countries, as in the above cited Places, *viz. London* and *Ipſwich*, it will not be amiſs to make the following Obſervations wherein this Difference conſiſteth.

It is ſaid above, that a Rod of Brickwork with all Place Bricks in *London*, is 5 *l.* 5 *s.* and in *Ipſwich*, for a Rod of Brick-walling with common Bricks, will coſt 6 *l.* 12 *s.* This Difference proceeds from the different Prices of Bricks in *London* and at *Ipſwich*; for in the former, the Place Bricks are ſold at 14 *s.* per Thouſand, and in the latter, the common Bricks are ſold at 20 *s.* per Thouſand (as above). Now if we conſider that there are 4500 of Bricks required to a Rod, which, at 14 *s.* per Thouſand, the Price of the *London* Place Bricks, is but 3 *l.* 3 *s.* whereas the ſame Number of the common Bricks at 20 *s.* per Thouſand, as in *Ipſwich*, amounts to 4 *l.* 10 *s.* And, if we allow the Charge of the Mortar and Workmanſhip, to a Rod of Brickwork, equal at both Places, there muſt neceſſarily be the above Difference in the Charge of one Rod of Brickwork in *London* and at *Ipſwich*.

Note, *That thirty-two Statute Bricks laid flat, will pave a Yard ſquare, and ſo will ſixty-four laid Edge-ways.*

15. Red and grey Arches, guaged, and ſet in Puttey in *London*, at 1 *s.* 4 *d.* per Foot ſuperficial.
16. Rubbed Arches of any Sort with fine red Bricks in *Ipſwich*, from 18 *d.* to 20 *d.* per Foot.
17. Workmanſhip only, from 10 *d.* to 12 *d.* per Foot.
18. Rubbed Returns in *London*, at 3 *d.* per Foot ſuperficial.
19. Groins cut to Arches, at 6 *d.* per Foot running.
20. Plain Facia's rubbed, in *Ipſwich*, at 13 *d.* per Foot.
21. Workmanſhip only, at 8 *d.* per Foot.
22. Brick Corniſhes, with fine rubbing Bricks, in *Ipſwich*, from 4 *s.* to 5 *s.* per Foot, lineal Meaſure.

23. Workmanſhip only, from 3 *s.* to 3 *s.* 6 *d.* per Foot.
24. Under-pinning in *Ipſwich*, from 5 *d.* to 6 *d.* per Foot running.
25. Workmanſhip only, from 1 *d.* to 1½ *d.* per Foot.
26. Digging and Bricking of new Wells, the Depth only being conſidered, at *Ipſwich*, at 7 *s.* 6 *d.* per Foot.
27. Workmanſhip only, at 2 *s.* 6 *d.* per Foot.
28. Place Bricks Paving, laid flat and dry, in *London*, at 14 *d.* per Yard ſuperficial, or 9 ſquare Feet.
29. *Ditto*, in Mortar, at 16 *d.* per Yard.

Note. *See the Doctrine of Party-Walls at the End of this Chapter.*

IX. *Of Tiling.* Tiling is meaſured by the Square of 10 Feet, as Carpenters meaſure their Roofs. You muſt obſerve in taking Dimenſions of Tiling, that you meaſure the whole Length; that is, as far as the Tiles are laid for your Length, and take from the Ridge to the Eves for your Breadth or Depth, and thereby you will have the true Content of the Tiling required. When many Hips and Vallies happen in a Roof, every Foot running muſt be added to the Meaſure, or ſquare Feet. The Quantity of Materials required in a Square of Tiling, at a nine Inch Gage, will be 665 Tiles, and at a ſeven Inch Gage 740 Tiles, one Peck of Tile-pins, 2 Buſhels and two-thirds of Lime, 5 Buſhels of Sand, and 1 Bundle of Lathes; and to a Bundle of 5 Feet Lathes, there is required 500 of Nails, at ſix Score to the Hundred; and to a Bundle of 4 Feet, 600 Nails; and commonly one of the Squares is accounted a Day's Work for a Trowel-man and a Labourer. The Charge of a Square of Tiling, if the Workman find Materials, is about 1 *l.* 10 *s.* per Square.

30. Twelve Inch Tile-paving in *London*, at 3 *s.* 6 *d.* per Yard.
31. Ten Inch *Ditto*, at 3 *s.* per Yard.
32. Plain Tiling in *London*, at 1 *l.* 6 *s.* per Square, or 100 ſuperficial Feet.
33. *Ditto*, in *Ipſwich*, at 1 *l.* 8 *s.* per Square.
34. Workmanſhip only, from 3 *s.* 6 *d.* to 4 *s.* per Square.
35. To find all Materials, excluſive of Tiles, at 10 *s.* per Square.
36. Old plain Tiling ripped, in *London*, at 14 *s.* per Square.
37. *Ditto*, in *Ipſwich*, according to the Goodneſs of the Tiles, from 14 *s.* to 18 *s.* per Square.
38. Pantiling not pointed, in *London*, at 18 *s.* per Square.
39. *Ditto*, pointed, at 1 *l.* per Square.
40. Workmanſhip when pointed, at 1 *s.* 8 *d.* per Square.

In *Ipſwich* Pantiling is valued the ſame in every Reſpect as at *London*.

41. Pantiling with old Pantiles, at 10 *s.* per Square.
42. *Dutch* glaz'd Pantiling in *Ipſwich*, at 1 *l.* 15 *s.* per Square.
43. *Engliſh*, *Ditto*, at 1 *l.* 10 *s.* per Square.

Beſides all the above Works, there comes to the Bricklayers Hands, the Paving of Kitchens, Cellars, *&c.* with Brick or Pammants, which Work is meaſured by the Yard ſquare, containing 9 ſquare Feet.

Note. *The following Advertiſement may not be unacceptable to ſome Readers.*

To be Sold, at Chalkhouſe *Tile-Kiln at* Primroſe-Hill, *by* Hampſtead-Road,

Plain Tiles 20 *s. per* 1000. Pantiles 6 *s. per* 100. Ridge Tiles One Penny each. Theſe to be delivered all well burnt; the Tiling will want no mending for many Years: But there are ſo many Sammel, or half burnt, amongſt thoſe commonly uſed, that the Tiling will not hold a wet or froſty Winter. Hard Paving Bricks, at 28 *s. per* 1000. Hard Tiles a Foot ſquare, Inch 3 quarters thick, at 18 *s. per* 100. *Ditto*, ten Inches ſquare, Inch and half thick, at 8 *s per* Hundred. Theſe being made of a ſtrong Clay, and thicker than common; thoſe that are hard burnt, endure equal to Stone, for Parapet Walls, Pavements, and Chimney-Hearths, and will not break or decay like thoſe commonly uſed; and thoſe not ſo hard burnt, are found to anſwer for Bottoms of Ovens, and ſetting Coppers and Furnaces.

Two Shillings in the Pound allowed for ready Money.

44. *Slating* with Can Quarry Slates, in *London*, at 1 *l.* 10 *s.* per Square, or 100 ſuperficial Feet.

45. *Ditto*, on O. G. Roofs, at 2 *l.* per Square.

46. *Ditto*, new ripped and laid, at 1 *l.* per Square.

X. *Of Thatching.* Thatching is a Work performed by the Square, and is meaſured the ſame as the Tiling. The Materials required in Thatching, are Straw, Lathes, Nails, Withes and Rods. One Load of Straw will do one Square and a half. One Bundle of Lathes one Square. One Hundred of Withes will do 3 Square, or one Pound of Rope-yarn will do one Square. One Hundred of Thatching Rods, at 6 *d.* will do 3 Square; and to a Square of Thatching, there is required two Hundred and an Half of Nails.

Thatchers Work is done by the Square of an 100 ſuperficial Feet.

1. Thatching-work, and all Materials, in *Ipſwich*, at 10 *s.* 6 *d.* per Square.

2. *Ditto*, Workmanſhip only, at 4 *s.* per Square.

SECT. IV. *Of* PLAISTERERS *Work.*

Plaiſterers Work is of two Kinds; namely,

1. Work lathed and plaiſtered, called *Cieling*; and,

2. Work rendered, which is alſo of two Kinds, *viz.* Rendering upon Brickwork, or in Partitioning between Quarters. The principal Thing to be regarded herein, is, (1.) To make Deductions for all Chimnies, Doors, and Windows, and meaſuring the Jaumbs and Heads. (2.) If the Workman find Materials for rendering between Quarters, you muſt deduct one fifth Part for Quarters, Braces, *&c.* but if Workmanſhip only is found, you muſt meaſure the Whole as whole Work; for the Workman could have performed the Whole much ſooner, if there had been no Quarters there. (3.) In meaſuring Whiting and Colouring between Quartering, there muſt be a fourth Part allowed extraordinary for the Returns of the Quarters.

The abovementioned Work is performed by the Yard Square, ſuperficial Meaſure; and the Dimenſions are taken in Feet and Inches. (4.) That ſuch Summers Girders as lie below a Cieling be deducted, if a Workman finds the Materials, otherwiſe not.

The Prices of Plaiſterers *Work.*

1. Grey Plaiſter Floors two Inches and a Half thick, in *London*, at 2 *l.* 5 *s.* per Square.

2. Workmanſhip only, at 1 *l.* per Square.

3. Red Plaiſter Floors, *ditto*, at 3 *l.* 5 *s.* per Square.

4. Workmanſhip only, at 1 *l.* 5 *s.* per Square.

5. Stoco on Fir Lathes, in *London*, at 1 *s.* 10 *d.* per Yard ſquare.

6. Workmanſhip only, at 10 *d.* per Yard.

7. Stoco on Oak Lathes, at 2 *s.* 1 *d.* per Yard.

8. Workmanſhip only, at 10 *d.* per Yard.

9. Stoco on Brick Walls, at 1 *s.* 5 *d.* per Yard.

10. Workmanſhip only, at 10 *d.* per Yard.

11. Floated Ceilings, in *London*, at 1 *s.* per Yard ſquare.

12. Workmanſhip only, at 5 *d.* per Yard.

13. Common Ceilings not floated, at 9 *d.* per Yard.

14. Workmanſhip only, at 3 ½ *d.* per Yard.

15. Floated Rendering, in *London*, at 6 *d.* per Yard.
16. Workmanſhip only, at 2 ½ *d.* per Yard.
17. Common Rendering, at 4 *d.* per Yard.
18. Workmanſhip only, at 1 ½ *d.* per Yard.
19. Rendering on Groins, at 5 *d.* per Yard.
20. Workmanſhip only, at 2 *d.* per Yard.
21. Lime White, and Whitening of old Work, in *London*, at 1 ½ *d.* per Yard.
22. Workmanſhip only, at a *Half-penny* per Yard.
23. Whitening of new Work, at 1 *d.* per Yard.
24. *Ditto*, Workmanſhip only, at ½ *d.* per Yard.

Note, *For the Materials of the following Ornaments, you may allow* 2 d. *per Foot if it be of fine Stuff.*

25. Inriched Mouldings to Pannels in Cielings, *&c.* in *London*, at 1 *s.* 7 *d.* per Foot, running.
26. Plain Mouldings to Corniſhes, *&c.* at 8 *d.* per Foot.
27. *Corinthian* Corniſhes, fully enriched, at 1 *s.* 10 *d.* per Foot.
28. *Ionick* ditto, at 1 *s.* 6 *d.* per Foot.
29. Plain, *ditto*, at 1 *s.* 2 *d.* per Foot.
30. Inriched Frizes with Oak Leaves, Acorns, *&c.* at 1 *s.* 8 *d.* per Foot.
31. Large Frames on Stair-caſes, *&c.* fully inriched, at 1 *s.* 8 *d.* per Foot.
32. Large Feſtoons of Fruit and Flowers, *&c.* at 3 *s.* 6 *d.* per Foot.

The following Rough-caſting and Plaiſtering is done by Bricklayers in Ipſwich.

33. Common Rough-caſting per Yard, ſquare Work, and all Materials, from 1 *s.* to 1 *s.* 4 *d.*
34. *Ditto*, Workmanſhip only, per Yard, from 5 *d.* to 6 *d.*
35. *Ditto*, with Stone, Mortar, and raiſed Pannels, at 2 *s.* per Yard.
36. *Ditto*, for Workmanſhip only, at 8 *d.* per Yard.
37. *Ditto*, with ſtone Mortar, done in Imitation of Stone-work, well floated and jointed, at 2 *s.* 6 *d.* per Yard.
38. *Ditto*, Workmanſhip only, with Lathing, at 8 *d.* per Yard.
39. Plaiſtering upon Brick-work with finiſhing Mortar, in Imitation of Stone-work, at 1 *s.* 6 *d.* per Yard.
40. *Ditto*, Workmanſhip only, at 6 *d.* per Yard.
41. For Lathing and Plaiſtering of Inſide-work, with Materials, at 10 *d.* per Yard.
42. *Ditto*, Workmanſhip only, at 4 *d.* per Yard.
43. Rendering on Brick-work with Hair-mortar, at 6 per Yard.
44. *Ditto*, Workmanſhip only, at 2 *d.* per Yard.
45. For Lathing and Plaiſtering of Cielings with Hair-mortar, at 1 *s.* per Yard.
46. *Ditto*, Workmanſhip only, at 4 *d.* per Yard.
47. For White-waſhing, with Whitening and Size, Work and Materials, at 2 *d.* per Yard ſquare.

Note, *One Bundle of Oaken Sap-Laths, is ſufficient for ſeven Yards of Plaiſtering: And one Bundle of Heart-Laths for ſix Yards.*

N. B. *In all theſe Works, the Scaffolding is to be conſidered; and the Quantity of Lime and fine Sand for finiſhing Mortar muſt be equal.*

SECT. V. *Of* MASONS *Work.*

MASONS Work is meaſured by the Foot, either ſuperficial or ſolid, and ſometimes both. The Dimenſions are taken in Feet, Inches, and Parts. The Solids are Blocks of Marble, or any Kind of Stone, Columns, Cornices, *&c.* The Superficies are Pavement, Slabbs, Chimney-pieces, and the like. It is to be obſerved, that Maſons firſt meaſure the Cube of the Stone, and then ſuperficial plain Work, alſo ſuperficial moulded Work, if any, as follows:

Firſt, They account all ſuch Stones as are above 2 Inches thick, at ſo much per Foot, ſolid Meaſure; and for the Workmanſhip they meaſure the Superficies of the Stone; but then they meaſure no more of the Stone than what appears without the Wall.

As for Example; Suppoſe a ſolid moulded aſtragal Step to be meaſured, which is 10 Feet 2 Inches long, 13 Inches wide, and 6 Inches high, how much of each Sort is contained therein.

Firſt, for the ſolid Meaſure, proceed as in the Margin, and you will have 5 Feet 6 Inches and $\frac{1}{12}$ for the ſolid Content.

Alſo, there will appear to be 11 Feet and $\frac{2}{12}$ of an Inch for the ſuperficial plain Work. But for the moulded Work, another Dimenſion muſt be formed thus, ——— ——— ——— and the moulded aſtragal Front will be ——— and will produce as in the Margin, 6 Feet, 9 Inches, and $\frac{4}{12}$ or $\frac{1}{3}$ of an Inch ſuperficial moulded.

F.	In.		
10	2		the Length.
1	1		the Breadth.
10	2		
	10	2	
11	0	2	ſuperficial Content.
	6		the Depth.
5	6	1	ſolid Content.
10	2		the Length.
	8		Girt at leaſt.
	6	8	
	1	4	
6	9	4	ſuperficial moulded.

But as their Method of meaſuring is not ſo well underſtood by many, as ſome others, it may be proper to give an Example how to meaſure a Chimney-piece, as a Guide to all others.

	F.	In.	Products.		
The Length of the Mantle and Slabb	4	9	14	7	9
Breadth of *Ditto.*	3	1			
	F.	In.			
Length of the Jaumbs to *Ditto.* —	4	1	7	9	11
Breadth of the two added together.	1	11			
	Total —		22	5	8

So that ſuch a Chimney-piece contains 22 Feet, 5 Inches, and $\frac{8}{12}$ or $\frac{2}{3}$. But ſometimes there is Marble *Slips*, *Noſeings*, and *Coveings*, which are alſo meaſured ſuperficial. Fire-ſtone Hearths, and Coveing-ſtones, muſt be caſt by themſelves, and all that appears in Sight, meaſured in the ſame Manner, and at the following Prices, *viz.*

1. BLACK and white veined *Italian* Marble, at 1 *l.* per Foot, Cube.
2. Superficial plain Work, on *ditto*, at 3 *s.* per Foot.
3. Superficial moulded Work, on *ditto*, at 5 *s.* per Foot.
4. Slabbs of *ditto*, in Chimney-pieces, at 5 *s.* per Foot, ſuperficial.
5. *Purple* Marble in Slabbs, at 8 *s.* per Foot ſuperficial.
6. *Dove* Marble, at 6 *s.* per Foot, ſuperficial.
7. *Portland* Stone, meaſured when wrought, in *London*, at 2 *s.* per Foot cubical Meaſure.
8. *Ditto*, in *Ipſwich*, at 2 *s.* 3 *d.* per Foot, Cube.
9. *Portland* Stone, ſtreight plain Work, in *London*, at 1 *s.* per Foot, ſuperficial.
10. *Ditto*, circular plain, at 1 *s.* 2 *d.* per Foot, *ditto*.
11. *Ditto*, ſtreight moulded Work, at 1 *s.* 2 *d.* per Foot, *ditto*.
12. *Ditto*, circular moulded Work, at 1 *s.* 4 *d.* per Foot, ſuperficial.
13. *Bath* Stone meaſured when wrought, in *London*, at 1 *s.* 6 *d.* per Foot, Cube.
14. *Ditto*, ſtreight plain Work, in *London*, at 5 *d.* per Foot, ſuperficial.
15. *Ditto*, circular plain Work, at 7 *d.* per Foot, *ditto*.
16. *Ditto*, ſtreight moulded Work, at 7 *d.* per Foot ſquare.
17. *Ditto*, circular moulded Work, at 9 *d.* per Foot, ſquare.
18. *Portland* Stone Chimney-pieces, Inch and Half thick, in *London*, at 1 *s.* 6 *d.* per Foot, ſuperficial.
19. *Ditto*, if 2 Inches thick, at 2 *s.* per Foot.
20. *Rygate* Fire-ſtone, Hearth, and Covings, in *London*, at 1 *s.* per Foot, ſuperficial.
21. *Portland* Paving, Inch and Half thick, at 1 *s.* 4 *d.* per Foot, ſuperficial.
22. *Ditto*, with black Marble Dotts, at 1 *s.* 8 *d.* per Foot, ſuperficial.
23. *Purbeck* Paving in random Courſes, at 7 *d.* per Foot.
24. *Ditto*, in ſtreight Courſes, at 8 *d.* per Foot.
25. Old *Purbeck* Paving, ſquared and laid, at 2 *d.* per Foot.
26. Black and white Marble Squares, at 2 *s.* 6 *d.* per Foot, ſuperficial.
27. White and veined Marble Slabb in Chimney-pieces, in *London*, at 5 *s.* per Foot, ſuperficial.
28. Statuary Marble Slabb, in *ditto*, at 6 *s.* 6 *d.* per Foot.
29. Black and yellow Marble Slabb, in *ditto*, at 7 *s.* 6 *d.* per Foot ſquare.
30. *Purple* common, in *ditto*, at 6 *s.* per Foot, ſuperficial.
31. *Portland* aſtragal Steps, at 3 *s.* 6 *d.* per Foot, running Meaſure.
32. Plain, *ditto*, at 3 *s.* per Foot, running.
33. *Purbeck* Steps, at 2 *s.* per Foot, running.
34. *Portland* Copeing, of about one Foot wide, three Inches one Side, and one and a half the other, in Thickneſs, at 1 *s.* 6 *d.* per Foot, running.
35. *Ditto*, but when larger, to be cubed firſt, and then meaſured ſuperficial plain Work.
36. So alſo *Portland* Curbs for Iron-work, *&c.* muſt be cubed firſt, and then meaſured ſuperficial plain Work.
37. Alſo the Holes cut in the ſame, for Iron, at 2 *d.* per Hole.
38. Baſes of Columns, Architraves, Frizes, Corniſhes, *&c.* of Marble, are, for Workmanſhip, 5 *s.* per Foot, ſuperficial.

39. The Shafts of Columns and Pilaſters, fluting on *Portland* Stone, Work only, at 1 *s.* 6 *d.* per Foot, Facio-work.

40. Carving the Capitals for the *Corinthian* and *Composite* Orders, from 6 *s.* to 7 *s.* per Foot, Facio-work, excluſive of the Stone.

Note, *Where in the above Articles and Prices, there is no mention made of the Place where the Work is done at that Rate, it is, becauſe I know of no material Difference between the Prices in* London, *and at* Ipſwich, *in thoſe Articles.*

N. B. *Theſe* Prices *(eſpecially in the Marble) muſt ſometimes be augmented according to the Beauty and Goodneſs of the Stone.*

SECT. VI. *Of* GLASIERS *Work.*

G*Laſiers* Work is meaſured by the ſuperficial Foot, and the Dimenſions may be taken in Feet, Inches, and Parts, but more accurately by Feet, and the hundredth Parts of a Foot, as their Rules are generally divided. The principal Things to be obſerved therein are theſe:

Where Windows are all of one Size, you need meaſure but one, and obſerving the Number of Times account for them all.

To meaſure circular or oval Windows, take the ſame Length and Breadth as their Diameters, as if they had been ſquare Windows; becauſe in cutting out the Quarries of Glaſs, there is a great Waſte, and more Time expended therein, than if it had been a ſquare Window.

For the better underſtanding this Method of Meaſuring, I ſhall ſhew an Example or two, both by X Multiplication and Decimals; therefore, ſuppoſing a Light of leaded Glaſs to be 3 Feet 9 Inches long, and 1 Foot 3 Inches wide.

By X Multiplication it is thus,

F.	In.		
3	9		The Length.
1	3		The Breadth.
3	9		
	9		
	2	3	
4	8	3	Content.

But on the *Glaſiers Rule*, where the Foot is divided into 100 Parts, you will find the Numbers muſt ſtand thus,

3.75	The Length.
1.25	The Breadth.
1875	
753	
375	
4,6875	Content.

and the whole Content will appear both Ways to be 4 Feet, 8 Inches, and ¼.

Again, in meaſuring Squares of Saſhes, no more than one need be ſet down, or caſt up, for having one multiplied by the whole Number, it will give the Content of them all.

For Example, If a Saſh-window have 18 Squares, and each Square is 1 Foot 2 Inches, or 1.17 Parts, in Length; and 9 Inches and ¼, or 77 Parts, in Breadth; How much Glaſs is therein?

By X Multiplication,

F.	In.	Pts.		
1	2	0		long.
0	9	3		broad.
0	9	0		
0	1	6		
0	0	3	6	
0	10	9	6.	

Multiplied by 18 the Number of Squares.

Total	16	2	3	0

So that in this Window is 16 Feet, 2 Inches, and a Quarter.

Decimally.

1.17	long.
.77	broad.
819	
819	
9009	Total of one.
Multiplied by 18	the Number of Squares.
72072	
9009	
16.2162	Total.

N. B. *There is at preſent an* Act of Parliament *in Force, that lays a* Duty upon Glaſs; *but, as it is expected this Act will be repealed, and the Duty taken off the* next Seſſions *of Parliament, the Prices here ſtand the ſame as they were before that Act commenced.*

☞ *And it is to be obſerved, that till the ſaid Duty is taken off,* about one third *more is to be added to the following Prices, except where the Workmanſhip only is ſpoke of.*

1. CROWN *Glaſs* in Saſhes, meaſured neat, at 11 *d.* per Foot, in *London.*

2. *Ditto,* the middle Bars included, at 10 *d.* per Foot, ſuperficial.

3. Saſhes glazed with *Crown Glaſs,* puttied on both Sides, in *Ipſwich,* from 12 *d.* to 1 *s.* 2 *d.* per Foot.

4. *Crown Glaſs* Glazing, leaded, at 8 *d.* per Foot in *London.*

5. *Newcaſtle Glaſs* in Saſhes, in *London,* from 6 *d.* to 8 *d.* per Foot, ſuperficial.

6. *Ditto* in Lead, at 5 *d.* per Foot, ſuperficial.

7. Saſhes glazed with waved or jealous Glaſs, at 2 *s.* 6 *d.* per Foot.

8. *Ditto,* with Plate Glaſs, Diamond cut, from one to two Foot, at 5 *s.* per Foot.

9. *Ditto,* from two to three Foot Panes, at 5 *s.* 6 *d.* per Foot.

10. *Ditto,* from three to four Foot Panes, at 6 *s.* per Foot.

11. Glazing with Squares and Quarries, in *Ipſwich,* according to the Goodneſs of the Glaſs, from 5 *d.* to 8 *d.* per Foot.

12. *Ditto,* for Glazing with Squares, Work, Sodder, and Lead only, at 2 *d.* ½ per Foot.

13. *Ditto,* Workmanſhip only, at 1 *d.* ½ per Foot.

14. To glaze with Quarries, the Workman finding only Lead, Sodder, and Work, at 3 *d.* per Foot.

15. *Ditto,* Workmanſhip only, from 1 *d.* ½ to 2 *d.* per Foot.

16. For taking down of Quarry Glaſs, Scowering, Soddering, Banding, and Setting up, from 1 *d.* ½ to 2 *d.* per Foot.

Note, The Glaziers generally reckon that 50 Pound of turned Lead, is ſufficient for 100 Foot of Quarry Glaſs.

In the *London Evening-Poſt,* of *June,* 1732, was the following Advertiſement.

THOMAS LOVETT, Glazier, *at the* Green Lamp, *in* Red-lion-Street, Holborn, *ſells the beſt Crown Glaſs for forty Shillings the half Caſe; likewiſe the ſame Proportions by the ſingle Table, and thoſe that have a Mind to have it cut to any Dimenſions for* 7 d. *per Foot; and for the ſecond Sort of Crown Glaſs for* 6 d. *per Foot; alſo Wainſcot Saſhes Inch and half thick, ready glazed, for* 1 *s. per Foot, to any Dimenſions. He alſo ſells, at* 18 *s. per Hundred Weight, the* famous Chymical Putty, *ſo much approved of, and uſed at Gentlemens Country-Houſes, and for Sky-Lights, that are much expoſed to the Weather, which greatly cements itſelf into the Wood, and neither drys nor crumbles as the common Putty does. N.B.* He deals only for ready Money.

SECT. VII. *Of* PAINTERS *Work.*

PAinters Work is meaſured in the ſame Manner as the Joiners only with this Difference, that inſtead of accounting the Doors and Window-ſhutters Work and half, they have double Works as being painted on both Sides; and they alſo meaſure all Edges, *&c.* where the Bruſh goes.

1. Saſh-Frames, Saſh-Lights, Window-Lights, and Caſements, are done at per Piece.
2. Modillion, and other outſide Cornice, at per Foot running Meaſure.
3. Outſide Painting, three Times in Oil, is worth, if well done, from 5 *d.* to 6 *d.* per Yard. Inſide Painting, new Work, of common Colours, at 6 *d.* per Yard.
4. Inſide Painting, old Work, of common Colours, at 4 *d.* per Yard; but of extraordinary Colours, as
5. Olive Colours, at 8 *d.* per Yard.
6. *Pruſſian* blue, at 10 *d.* per Yard.
7. Greens at 12 *d.* per Yard.
8. Saſh-Frames, at 12 *d.* each.
9. Saſh-Lights, at 1 *d.* each.
10. Window-Lights and Caſements, at 3 *d.* each.
11. Iron-bars, at 1 *d.* each, or more, if very large.
12. Modillion Cornice, from 4 *d.* to 8 *d.* per Foot, running.
13. Common outſide Cornice, 2 *d.* per Foot, running.

N. B. All Carving in Rooms, and outſide Frontiſpieces to Doors, *&c.* are ſo various, that they muſt be valued by the Time and Materials expended.

Of Colours uſed in Houſe-Painting.

Painting, if not the chief, is as neceſſary a Part of Building as any other whatever, both for Uſe and Ornament, the doing of which well and often, being the ſureſt Way of preſerving all the reſt; Inſtances of which may be ſeen in ſeveral Buildings about *London*, where the Misfortunes of the Builders have prevented them from finiſhing their Works: For it may be obſerved, that the Saſh-Frames, Saſhes, Window-Shutters, Doors, and Door-Caſes, for Want of Painting, in a very few Years, are ſo much decayed, that were thoſe Buildings to be made tenantable, moſt of the outſide Timber-Work muſt be renewed. Iron-work, though of a much ſtronger Nature than Timber, if not well ſecured by Painting, is likewiſe ſubject to the ſame Misfortune. On the contrary, where Timber-Work is often painted, it will endure many Ages; no Weather being able to penetrate through it. As to the ornamental Part, there is no Gentleman but muſt allow, that there is a great Difference between a clean painted Room, and one that hath not been painted, or where the Painting is foul.

I ſhall be the more particular under this Head, *Of Colours*, Painters Work being very expenſive; and this being the only Part in Building, wherein a Gentleman can be aſſiſting, either by himſelf or Servants; it being almoſt impoſſible for any Gentleman to do either Maſons, Bricklayers, Carpenters, or Smiths Works: whereas it is well known, and daily experienced, ſince the Advertiſement of *Alexander Emerton*, that ſeveral Noblemen and Gentlemen, have by themſelves and Servants, painted whole Houſes, without the Aſſiſtance or Direction of a Painter, which, when examined by the beſt Judges, could not be diſtinguiſhed from the Work of a profeſſed Painter.

And that which conduces moſt to this Practice, is the vaſt Diſproportion between the Prices, which Painters charge for their Work, and the Expence which Gentlemen are at in this Method of Painting, which, at the utmoſt, doth not amount to one fourth Part of the Painter's Price; to prove which, I ſhall proceed to the Prices of Colours, and likewiſe ſhew what Number of Yards, one Pound of each Colour will paint.

Firſt Primer, ground in Oil, at 36 *s.* per 112 Pound Weight, or 4*d.* per Pound. One Pound of which will paint 20 ſquare Yards.

Second Primer, ground in Oil, at 36 *s.* per 112 Pound, or 4 *d.* per Pound. One Pound of which will paint 12 ſquare Yards.

Beſt white Lead, ground in Oil, at 36 *s.* per 112 Pound, or 4 *d.* per Pound.

One Pound of which, with two Pennyworth of Oil, will paint 8 ſquare Yards; which is three Farthings per Yard, for which Painters uſually charge 4 *d.* per Yard.

Pearl Colour, ground in Oil, at 4 *d.* and 5 *d.* per Pound.

Lead Colour, ground in Oil, at 4 *d.* and 5 *d.* per Pound.

Cream Colour, ground in Oil, at 4 *d.* and 5 *d.* per Pound.

Stone Colour, ground in Oil, at 4 *d.* and 5 *d.* per Pound.

Wainſcot, or *Oak Colour*, ground in Oil, at 4 *d.* and 5 *d.* per Pound.

One Pound of any of theſe Colours, with Oil, will paint 8 ſquare Yards, for which Painters uſually charge 4 *d.* per Yard.

Chocolate Colour, ground in Oil, at 6 *d.* per Pound.

Mohogany Colour, ground in Oil, at 6 *d.* per Pound.

Cedar Colour, ground in Oil, at 6 *d.* per Pound.

Wallnut-tree Colour, ground in Oil, at 6 *d.* per Pound.

One Pound of any of theſe Colours, with Oil, will paint 10 ſquare Yards, for ſome of which Painters uſually charge 4 *d.* per Yard, for others more.

Gold Colour, ground in Oil, at 8 *d.* per Pound.

Olive Colour, ground in Oil, from 8 *d.* to 12 *d.* per Pound.

Pea Colour, ground in Oil, from 8 *d.* to 12 *d.* per Pound.

Fine Sky Blue mixed with *Pruſſian Blue*, ground in Oil, from 8 *d.* to 12 *d.* per Pound.

Orange Colour, ground in Oil, at 12 *d.* per Pound.

Lemon Colour, ground in Oil, at 12 *d.* per Pound.

Straw Colour, ground in Oil, at 12 *d.* per Pound.

Pink Colour, ground in Oil, at 12 *d.* per Pound.

Bloſſom Colour, ground in Oil, at 12 *d.* per Pound.

One Pound of any of theſe Colours, with Oil, will paint 8 ſquare Yards, for ſome of which Painters uſually charge 10 *d.* or 12 *d.* per Yard, for others they will expect more.

Fine deep Green, ground in Oil, at 2 *s.* 6 *d.* per Pound.

One Pound of which, with Oil, will paint 20 ſquare Yards, for which Painters uſually charge 12 *d.* per Yard.

Oils uſed in Houſe-painting, are

Linſeed-Oil, at 10 *d.* per Quart.

Turpentine-oil, at 12 *d.* per Quart.
Beſt drying Oil, at 12 *d.* per Quart.
Painting Bruſhes of ſeveral Sizes, from 2 *d.* to 6 *d.* each.
Putty, at 4 *d.* per Pound.
Double Size uſed by Painters for priming new Work, at 4 *s.* per Firkin, or 2 *d.* per Quart.
Single Size, at 18 *d.* per Firkin, or 1 *d.* per Quart.

These Colours, with all other Materials uſed in Painting, are prepared in the beſt Manner, and ſold by the Widow *Emerton*, at the *Bell*, over-againſt *Arundel-ſtreet*, near St. *Clement*'s Church in the *Strand*, *London*. She likewiſe gives printed Directions for the uſing her Colours, or procures Painters to work for Gentlemen by the Day.

SECT. VIII. *Of* PLUMBERS *Work.*

PLUMBERS Work is uſually done by Weight, *viz.* the great Hundred or 112 Pound. And it is uſual with the Plumbers to caſt their Sheet-Lead of various Thickneſſes for covering of Flats, Roofs, Guttering, &c. there is generally allowed from 7 to 12 Pound to the Foot, ſuperficial.

1. All Sheet-Lead, either caſt or milled, Sodder and Labour included, at 20*s.* per Hundred.
2. *Ditto*, excluſive of Sodder and Labour, at 18 *s.* per Hundred.
3. All Rain-water Pipes, Rain-water Ciſterns, battened Ciſterns, Lead-pumps, Sodder and Labour included, at 1 *l.* 2 *s.* per Hundred.
4. All Water Pipes, from three Quarters, to 7 Inches Bore, Labour and Sodder included, at 1 *l.* per Hundred.
5. Soddering the Joints of Water-pipes, for three Quarters Bore, at 2 *s.* 6 *d.* per Joint.
6. *Ditto*, for 1 Inch, at 3 *s.*
7. *Ditto*, for 1 Inch and half, 3 *s.* 6 *d.*
8. *Ditto*, for 2 Inches, 4 *s.* 6 *d.*
9. *Ditto*, for 2 Inches and half, 5*s.* 6*d.*
10. *Ditto*, for 3 Inches, 7 *s.*
11. *Ditto*, for 3 Inches and half, 8*s.* 6*d.*
12. *Ditto*, for 4 Inches, 10 *s.*
13. *Ditto*, for 4 Inches and half, 11 *s.*
14. *Ditto*, for 5 Inches, 12 *s.* 6 *d.*
15. *Ditto*, for 5 Inches and half, 14 *s.*
16. *Ditto*, for 6 Inches, 16 *s.*
17. *Ditto*, for 6 Inches and half, 19 *s.*
18. *Ditto*, for 7 Inches, 1 *l.* 1 *s.*
19. Saſh Weights and other Things of the like Nature, at 18 *s.* per Hundred.
20. Sodder, at 8 *d.* per Pound.
21. Braſs Cocks and Boſſes, from 3 Inches to Inch and quarter Diameter, at 1 *s.* 3 *d.* per Pound.
22. Braſs Cocks and Boſſes; Sodder, Labour, ſetting on, and all Charges included, if Inch and half Diameter, at 7 *s.* 6 *d.* each.
23. *Ditto*, Inch and quarter, 5 *s.* 6 *d.*
24. *Ditto*, Inch, 4 *s.* 6 *d.*
25. *Ditto*, 3 Quarters, 3 *s.* 6 *d.*
26. *Ditto*, half Inch, 3 *s.*
27. *Ditto*, If not Boſſes, deduct from the ſmall ones 4 *d.* the middle Size 6 *d.* and the largeſt 8 *d.* each.
28. Stop-Cocks, at 1*s.* 3*d.* per Pound.
29. *Ditto*, with ſetting on, Sodder, Labour &c. included, Inch and half Diameter, at 8 *s.* 6 *d.* each.
30. *Ditto*, Inch and quarter, 7 *s.*
31. *Ditto*, Inch, 5 *s.* 6 *d.*
32. *Ditto*, 3 Quarters, 4 *s.* 6 *d.*
33. *Ditto*, half Inch, 3 *s.* 6 *d.*
34. Ball-Cocks, the Ball 6 Inches in Diameter, the Cocks one Inch, at 12 *s.* each.
35. *Ditto*, 5 Inches three quarters Diameter, 9 *s.*
36. *Ditto*, 4 Inches and half Diameter, 6 *s.*
37. To allow for all old Lead, 14 *s.* per Hundred.

Note, It is uſual, as I have obſerved, to caſt Sheet-lead of various Thickneſſes, for guttering, laying of Flats, covering of Roofs, *&c. viz.* from 7 to 12 Pound the Foot ſquare; I ſhall therefore exhibit the following Table, which will readily ſhew the Value of a Foot ſquare of Sheet-lead when caſt to any of the above-mentioned Thickneſſes, and according to the above Prices at *London* and *Ipſwich*, per Hundred; by which it will be very eaſy to calculate the Expence of covering any Place with Sheet-lead of any Thickneſs, by only meaſuring the Superficies of the Place to be covered, and determining on the Thickneſs of the Lead.

The T A B L E.

Lead at Pound to a Foot,		s.	d.			s.	d.	
7	in *London*, at the Rate of 18*s.* per Hundred, is worth	1	1½	per Foot.	*Ditto*, in *Ipſwich*, at the Rate of 20*s. per* Hundred, is worth	1	3	per Foot.
8		1	3¼			1	5	
9		1	5¼			1	7¼	
10		1	7¼			1	9¼	
11		1	9			1	11½	
12		1	11			2	2½	

I ſhall alſo exhibit the Weight and Prices of Leaden-pipes of different Sizes, as calculated for a Perſon of Quality, by Mr. *Stephen Switzer*, and ſet down in his Syſtem of *Hydroſtaticks* and *Hydraulicks*, Vol. I. *Page* 123.

Says this Author, it will be to little Purpoſe, for me to urge that Pipes are dearer and cheaper, in Proportion to their Dimenſions and Thickneſſes, and conſequently to the Price of Lead, and the Allowance in Weight that is made to every Foot or Yard: But the following is a Calculation made for a Perſon of Quality, by whom I had the Honour to be employed, and where Lead, Caſting and all, is reckoned at 22 *s.* per Hundred.

To a Yard of Pipe of Inches Bore.	there is allowed Pound Weight.	and is worth from *s.*	to *s.*	
3	45	9	10	per Yard.
2¼	40	8	9	
2½	36	7	8	
2	30	6		

This Author further obſerves, that to the three firſt of the above-mentioned Pipes, it would not be amiſs to add five Pounds more to every Yard; and that theſe Prices are calculated when Lead is worth from 22 *s.* to 25 *s.* per Hundred Weight, allowing for Waſte.

Note, The Legiſlature have enjoined, that the Water falling from the Tops of the Houſes, [in and about the Cities of *London* and *Weſtminſter*, or other Pariſhes or Places compriſed within the weekly Bills of Mortality, or within the Pariſhes of *Mary-le-Bone*, *Paddington*, *Chelſea*, and *Pancras*, or either of them, in the County of *Middleſex* (except Houſes on *London* Bridge, and on the River *Thames* below Bridge) that ſhould be built, after the *Twenty-fourth* Day of *June*, *One thouſand Seven-hundred and Twenty-five*,] and the Water falling from the Balconies and Pent-houſes thereof, ſhould be conveyed into the Channels by Party-pipes on the Sides or Fronts of the ſaid Houſes, on Pain that the *Owner* or *Owners* offending herein, ſhould, for every Offence, forfeit the Sum of *Ten Pounds*, to be recovered by Action of Debt, or on the Caſe, Bill, Plaint, or Information in any of his Majeſty's Courts of

Record at *Weſtminſter*, wherein no Eſſoign, Protection, Privilege, or Wager of Law, or more than one Imparlance ſhall be allowed.

N. B. *That there are ſome Men of this, as well as of all other Profeſſions, that will ſell for leſs Profit than others; the following* Advertiſement *is a Proof.*

Whereas it has been the Practice of many *Plumbers* to charge an extravagant Price for Leaden-pipes (to the great Diſcouragement of Gentlemen) they not being ſatiſfied under *Thirty* per Cent *Profit*: To prevent which Impoſition for the future, JOHN HEYSHAM, *Plumber*, in *Eaton*, near *Windſor*, makes and ſells Leaden-pipes of all Sizes, *viz.* Common-pipe, three Quarters of an Inch Bore, at 1 *s.* 8 *d.* per Yard, the Yard weighing 10 Pound. One Inch Bore at 2 *s.* per Yard, weighing 12 Pound per Yard. Inch and quarter Bore, at 2 *s.* 8 *d.* weighing 16 Pound per Yard. Inch and half Bore, at 3 *s.* per Yard, weighing 18 Pound per Yard. Inch and three quarters Bore, at 3 *s.* 6 *d.* per Yard, weighing 21 Pound per Yard. Two Inch Bore, at 4 *s.* per Yard, weighing 24 Pound per Yard, or 18 *s.* and 8 *d.* per Hundred.

SECT. IX. *Of* PAVIOURS *Work.*

PAVIOURS Work is meaſured by the Yard ſquare, of 3 Feet each Way.

For the underſtanding of how many paving Tiles, Bricks, *&c.* will pave a Cellar, Vault, *&c.* Obſerve,

That	26	Tiles,	6	Inches ſquare, will be ſufficient to pave a Yard ſquare.
	20½		8	
	16		9	
	13		10	
	9		12	

The PRICES.

1. NEW Pebble Paving, not leſs than 14 Inches deep, finding Materials and Work, at 3 *s.* 6 *d.* per Yard. The Pebbles in each ſuch Yard, ought to be 3 Hundred Weight.

2. *Ditto*, 15 Inches deep, finding Materials and Work, at 4 *s.* per Yard. The Pebbles in each ſuch Yard ought to be 4 Hundred Weight.

3. *Ditto*, from 16 Inches to 18 Inches deep, finding Materials and Work, at 4 *s.* 6 *d.* per Yard. The Pebbles in each ſuch Yard, ought to be 5 Hundred Weight.

4. New *Purbeck* ſquare Paving, 6 Inches thick, at 5 *s.* 6 *d.* per Yard.
5. *Ditto*, if of the hard blue Sort, at 6 *s.* per Yard.
6. New *Flanders* Brick-paving, in *London*, at 3 *s.* 6 *d.* per Yard, ſquare.
7. *Ditto*, Workmanſhip only, at 5 *d.* per Yard.
8. New *Purbeck* ſquare Paving, 4 Inches thick, at 4 *s.* 6 *d.* per Yard.
9. *Ditto*, Workmanſhip only, Gravel included, at 6 *d.* per Yard.
10. Paving with *Kentiſh* Squares, at 4 *s.* 6 *d.* per Yard.
11. Paving with Ragg, at 1 *s.* 8 *d.* per Yard.
12. *Ditto*, old Work, at 8 *d.* per Yard.
13. New Ragg Paving or Bowlers, at 2 *s.* 6 *d.* per Yard.
14. Paving with red Bricks, in *Ipſwich*, at 1 *s.* per Yard.
15. *Ditto*, Workmanſhip only, at 5 *d.* per Yard.
16. White Brick Paving, at 1 *s.* 6 *d.* per Yard.
17. Paving with Clinkers, at 2 *s.* 4 *d.* per Yard.
18. Nine Inch Pammant-pavement, at 2 *s.* 6 *d.* per Yard.

19. Free-Stone Paving, with Stones of promiſcuous Lengths and Breadths, at 3 *s.* per Yard.

20. White Marble, veined with red, &c. in Squares, at 5 *s.* per Foot.

21. *Portland* Stone Paving, fit for Halls, at 1 *s.* 6 *d.* per Foot.

22. Paving with nine Inch Pammants, at 2 *s.* 6 *d.* per Yard.

23. *Ditto*, Workmanſhip only, at 6 *d.* per Yard.

N. B. *See more of Paving under* MASONS-WORK.

Note, The above Prices are calculated from the Materials, being at the following Rates; therefore when, or where they are ſold for more or leſs, you muſt make a ſuitable Allowance.

24. Pebbles at 20 *s.* per Ton.

25. Gravel at 2 *s.* 4 *d.* per Load.

26. Raggs at 10 *s.* per Ton.

27. *Flanders* Bricks at 20 *s.* per Thouſand.

SECT. X. *Of* BLACKSMITHS *Work.*

BLackſmiths Work is done by the Pound Weight.

1. Caſements for Windows, Croſs Window Bars, filed, and Work of the like Nature, at 4 *d.* ½ per Pound.

2. Iron Doors and Shutters, at 10 *d.* per Pound.

3. New Keys to Locks, from 1 *s.* to 2 *s.* each.

4. All hammered Work, as Chimney Bars, Stays, upright Window Bars, Iron Fenders, Shutter Bars, Pump Work, Bolts, Saddle Bars, Cramps, Holdfaſts, Wall-hooks, Gudgeons, Hoops, and all black Work of the ſame Nature, at 3 *d.* ½ per Pound.

5. Pins, Hoops, Chains, Hooks, &c. to Stable Bails, at 4 *d.* per Pound.

Here follows an exact Account of ſuch *Nails*, *Locks*, *Hinges*, and *Tools*, and their Prices, as are uſed in Building, which I have obtained with great Pains and Expence, from the *Reſpective* SMITHS, and therefore it may be depended upon, which nothing of this Kind hitherto publiſhed can be.

Of NAILS.

The GENERAL Sorts are

Bill Brads, *Gunners* Brads, *Plain* Brads.

Dye Hobbs, *Roſe* Hobbs, *Skidder* Hobbs, *Thick* Hobbs, *Claſp* Hobbs.

Lead Nails, *Draw* Nails, *Deſk* Nails, *Roſe* Nails, *Flat-Head* Nails, *Flat-Point* Nails, *Scupper* Nails, *Sharp* Nails, *Middle* Nails, *Prigg* Nails, *Square* Nails, *Spike* Nails.

N. B. All the above Sorts are ſold by the 1000, and (including them all) they are from 8 *d.* to 12 *s.* *per* 1000.

	Weight.		Price.			Weight.		Price.	
	lb.	*oz.*	*s.*	*d.*		*lb.*	*oz.*	*s.*	*d.*
Such of them as weigh *per* 1000-	0	2¼	0	8¼	Such of them as weigh *per* 1000-	1	0	0	11½
	0	5	0	8¼		1	8	1	1¼
	0	6	0	8½		1	12	1	1¾
	0	7	0	9¼		1	14	1	2¾
	0	9	0	9½		2	0	1	2¾
	0	14	0	11¼					

Such

	Weight.		Price.	
Such of them as	*lb.*	*oz.*	*s.*	*d.*
weigh *per* 1000-	2	8	1	4¾
	2	14	1	6¼
	3	0	1	7½
	3	8	1	8½
	3	12	1	10
	4	4	1	11¼
	4	12	2	1
	5	0	2	3
	5	4	2	3¼
	5	8	2	4
	6	0	2	7.
	6	12	2	8½
	7	0	2	9½
	7	8	2	11½
	8	0	3	0½
	9	0	3	3
	10	0	3	6
	12	0	4	1
	13	0	4	6
	15	0	5	0
	16	0	5	3
	18	0	5	10
	19	0	6	2
	20	0	6	5
	21	0	6	8
	23	0	7	3
	24	0	7	9
	26	0	8	2
	27	0	8	6
	30	0	9	2
	32	0	9	9
	36	0	11	0
	40	0	12	6

***Flat-Pointed* Nails are ſold by the Hundred Weight.**

	Price *per* 1000 wt.		
	l.	*s.*	*d.*
Name 24 *d.*	1	11	0
30 *d.*	1	10	0
40 *d.*	1	9	6
4 *s.*	1	9	0
5 *s.*	1	9	0
6 *s.*	1	9	0

The OTHER Sorts of Nails, *viz.*

***Batten* Brads are ſold by the 1000.**

	Price.		Weight.	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	0	8½	0	8
	0	11	0	14
	0	11½	1	0
	1	3¼	1	12
	1	4	2	0
	1	9½	2	12
	1	10	2	14
	1	11	3	0
	2	4	4	0
	2	10	5	0

***Clout* Nails are ſold by the 1000.**

	Price.		Weight.	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	2	1½	4	8
	2	10	7	0
***Clout Brads* at**	3	6	9	0

***Pound* Nails are ſold by the Hundred Weight.**

	Price *per* 100 wt.		
	d.	*s.*	*l.*
Name 14 Pound	1	15	6
20 Pound	1	15	0
34 Pound	1	14	6
44 Pound	1	13	6
54 Pound	1	12	0

***Dog* Nails are ſold by the 1000.**

	Price.		Weight.	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	3	9	9	0
	4	9	12	0
	5	9	16	0

N.B. **That there are other larger Sizes, *viz.* from 20 Pound to 100 Pound Weight, *per* 1000, and are all ſold at 4 *d.* or 4 *d.* ½ *per* Pound.**

Jobent Nails are ſold by the 1000.

	Price.		Weight.	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	0	10½	0	14
	0	11½	1	0
	1	2½	1	14
	1	3	2	0
	1	6½	3	0

Ribbing Nails, there are ſeveral Sorts of, *viz.* from 5 to 10 Inches, and are ſold at 27 *s. per* 100 Weight.

Round-Head Nails are ſold by the 1000.

	Price.		Weight.	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	0	11½	0	13
	1	0½	1	0
	1	3	1	10
Price *per* 1000-	1	4½	2	0
	1	11	3	4
	2	8½	5	0
	3	3	7	0
	4	3	10	4
	5	5	13	6

Glaziers Sprigs are ſold by the 1000.

	Price.		Weight	
	s.	*d.*	*lb.*	*oz.*
Price *per* 1000-	0	7½	0	3
	0	8½	0	14
	0	8¾	1	0

Timber Nails are of ſeveral Sorts, *viz.* from 6 to 15 or 16 Inches, and are at 30 *s. per* 100 Weight.

Joiners Rivets are ſold by the Pound, *viz.* thoſe of an Inch at 4½ d; Inch ½ at 4½d; 2 Inches at 4¼d; 3 Inches at 4¼ d; 3 Inches at 4 d.

Caſement Hooks are ſold by the Groſs, *viz.* thoſe that weigh 53 Pound *per* 1000, at 2 s 9 d; thoſe that weigh 70 Pound *per* 1000, at 3 s 6 d.

Tenter Hooks are ſold by the 1000, *viz.* thoſe that weigh 1 Pound, at 1 s 4 d; 1 Pound 8 Ounces, at 1 s 6d; 3 Pound 8 Ounces, at 2 s 3 d; 5 Pound 8 Ounces, at 3 s; 10 Pound, at 4 s 6 d; 18 Pound 8 Ounces, at 7s 6 d; and thoſe of 39 Pound 8 Ounces, at 15 s 6 d.

Curtain Hooks are ſold by the Groſs, *viz.* weighing 21 Pound at 1 s.

HL Hinges, the beſt are ſold *per* Pair, *viz.* thoſe of 6 Inches, at 9 d; 7 Inches, at 10 d; 8 Inches, at 1 s 2 d; 9 Inches, at 1 s 3 d; 10 Inches, at 1 s 6 d; 11 Inches, at 2 s; 12 Inches, at 2 s 10 d. *per* Pair.

N. B. There are larger Sizes, which are ſold at 10 d *per* Pound.

HL with riſing Joints are ſold *per* Pair, *viz.* thoſe of 7 Inches, at 1 s 3 d; 8 Inches, at 1 s 5 d; 9 Inches, at 1 s 10 d; 10 Inches, at 2 s; 11 Inches, at 3 s; 12 Inches, at 3 s 10 d *per* Pair.

Pew Hinges are ſold *per* Dozen, *viz.* thoſe of 6 Inches, at 9 s 9 d; 7 Inches, at 13 s; 8 Inches, at 17 s 6 d; 9 Inches, at 20 s 6 d; 10 Inches, at 26 s *per* Dozen.

Shutter Hinges are ſold by the Dozen, *viz.* thoſe of 6 Inches, at 7 s 6 d; 7 Inches, at 10 s 6 d; 8 Inches, at 12 s; 9 Inches, at 16 s 9 d *per* Dozen.

Side Hinges are ſold by the Dozen, *viz.* thoſe of 5 Inches, at 5 s; 6 Inches, at 6 s; 7 Inches, at 8 s 9 d; 8 Inches, at 10 s 6 d; 9 Inches, at 12 s 9 d; and 10 Inches, at 13 s 6 d *per* Dozen.

Dove-tailed Hinges, the beſt are ſold by the Pair, *viz.* thoſe of 3 Inches, at 3 s; 3 Inches and a half, at 4 s; 4 Inches, at 4 s 6 d; 4 Inches and a half, at 5 s 6 d; 5 Inches, at 5 s 9 d *per* Pair.

Black Hinges, *Cheſt* Hinges, *Cheſt* Haſps, *Hooks* and *Hinges*; *Scuttle* Hinges, *Strap* Hinges.

N. B. All

N. B. All theſe Sorts are ſold by the Dozen, and are from 3 s 6 d to 11 s *per* Dozen, *viz.* at 3 s 6 d; at 4 s 6 d; at 5 s 3 d; at 6 s 3 d; at 7 s 9 d; at 8 s 6 d; and at 11 s *per* Dozen.

X *Garnet-Hinges* with riſing Joints, are ſold by the Dozen, and are from 6 s 9 d, to 16 s *per* Dozen, *viz.* 6 s 9 d, at 9 s, at 10 s 6 d, at 13 s 6 d, and at 16 s 6 d *per* Dozen.

X *Garnet* and *Scuttle Hinges* that are weighty, are ſold at 33 s *per* Hundred Weight.

X *Garnet Hinges, filed Joints*, are ſold at 38 s *per* hundred Weight.

Hinges with Hooks, are ſold at 30 s *per* hundred Weight.

N. B. Sometimes they have *Stay-hooks*, and then they are 2 s, or 2 s 3 d *per* Hundred more.

The cheaper Sort of Hinges are *Lancaſhire* Hinges, *Balcony* Hinges, *Cheſt* Hinges, *Dove-tail'd* Hinges, X *Garnet* Hinges, and *ſide* Hinges.

N. B. Theſe Sorts are ſold by the Dozen; the Prices are from 13 d to 31 s *per* Dozen, *viz.* at 1 s 1 d, at 1 s 3 d, at 1 s 6 d, at 2 s 6 d, at 3 s 3 d, at 4 s 3 d, at 5 s, at 8 s 3 d, at 10 s 6 d, at 12 s 6 d, at 14 s 3 d, at 16 s, at 17 s 6 d, at 20 s, at 25 s, and at 31 s *per* Dozen.

Smooth-filed Hinges, *viz. Balcony* Hinges, *Box* Hinges, *Cheſt* Hinges, *Clock-Caſe* Hinges, *Deſk* Hinges, *Pew* Hinges, *Shutter* Hinges, *Side* Hinges.

N. B. Of theſe Hinges there are ſeveral Sorts, and are ſold by the Dozen, *viz.* at 1 s 8 d, at 1 s 10 d, at 1 s 11 d, at 2 s 2 d, at 2 s 6 d, at 3 s, at 3 s 6 d, at 4 s, at 4 s 6 d, at 5 s 6 d, at 7 s, at 9 s 6 d, at 10 s, at 11 s, at 14 s, at 16 s 6 d, at 20 s 6 d, at 22 s 6 d, at 24 s, at 26 s, at 30 s 6 d, at 35 s, and at 43 s 6 d *per* Dozen.

Smooth-filed Hinges, ſome are ſold by the Pair, *viz.* at 4 s, at 5 s, at 5 s 6 d, at 6 s, and at 7 s 6 d *per* Pair.

Holdfaſts and *Wall-hooks* are ſold at 33 s *per* hundred Weight.

Ditto, for Joiners, are ſold at 4½ d *per* Pound.

Hooks and *Eyes* for *Gates*, are ſold at 3½ d, or 3¾ d *per* Pound.

Long-tinned Latchets are ſold by the Dozen, *viz.* the 1ſt Sort at 2 s 6 d, the 2d Sort at 2 s 8 d, the 3 d Sort at 3 s 6 d, the 4th Sort at 4 s, the 5th Sort at 4 s 6 d, the 6th Sort at 6 s 6 d, the 7th Sort at 7 s, and the 8th Sort at 8 s *per* Dozen.

Varniſh Latches are ſold by the Dozen, *viz.* the 1ſt Sort at 2 s 7 d, the 2 d Sort at 3 s, the 3d Sort at 4 s, the 4th Sort at 6 s 3 d, and the 5th Sort at 8 s 3 d *per* Dozen.

Spring and *Thumb Latches* are ſold by the Dozen, *viz.* the 1ſt Sort at 3 s 7 d, the 2d Sort at 4 s 3 d, the 3d Sort at 4 s 9 d, the 4th Sort at 5 s 6 d, the 5th Sort at 7 s, the 6th Sort at 8 s 4 d, the 7th Sort at 9 s 3 d, the 8th Sort at 12 s, and the 9th Sort at 14 s 9 d *per* Dozen.

Latches with *braſs Knobs*, are ſold by the Dozen, *viz.* the 1ſt Sort at 14 s, the 2d Sort at 16 s, and the 3d Sort at 18 s *per* Dozen.

Rimmed Latches are of *ſundry* Sizes.

N. B. Of theſe ſome are *Iron-caſed*, ſome *Braſs-caſed*, and ſome *Sliding-caſed*, and are ſold *ſingle*; and are from 2 s to 15 s 6 d *each*, *viz.* at 2 s, at 2 s 3 d, at 2 s 4 d, at 3 s, at 3 s 6 *d*, at 4 s 4 d, at 4 s 7 d, at 5 s 6 d, at 6 s 6 d, at 8 s 6 d, at 9 s, at 10 s, at 12 s 6 d, at 13 s 6 d, and at 15 s 6 d *each*.

D *Gate Locks*, X 2 Wards, 3 Wards, *ſteel* Wards, *ſlit* Key, or *letter*-Key, are ſold by the Dozen, *viz.* at 2 s 9 d, at 2 s 10 d, at 3 s, at 3 s 4 d, at 3 s 6 d, at 4 s 3 d, at 4 s 6 d, at 5 s 6 d, at 7 s, at 7 s 6 d, at 8 s 6 d, at 9 s, at 11 s, and at 14 s 6 d *per* Dozen.

Hanging Locks, *Pad* Locks, *Slit-key'd* Locks, are ſold by the Dozen, *viz.* at 3 s 6 d, at 4 s 6 d, at 4 s 8 d, at 5 s 6 d, at 7 s, at 8 s 3 d, at 9 s 3 d, at 10 s 9 d, at 12 s 6 d, at 14 s 9 d, and at 16 s 6 d *per* Dozen.

Bridged and *ſecret* Padlocks, ſome are ſold by the Dozen, *viz.* at 9 s 6 d, at 11 s 6 d, at 14 s, and at 16 s 6 d *per* Dozen.

Some are ſold *ſingly*, *viz.* at 1 s 8 d, at 1 s 10 d, at 2 s 3 d, at 2 s 6 d, at 2 s 9 d, at 3 s 6 d, at 4 s, and at 5 s 9 d *each*.

Cabinet Locks, *Box* Locks, *Cupboard* Locks, and *Till* Locks (whether in Suit or not) are ſold *per* Dozen, *viz.* at 3 s 9 d. at 3 s 10 d, at 4 s 3 d, at 4 s 6 d, at 5 s 6 d, at 7 s, at 8 s, at 9 s 6 d, at 10 s 6 d, at 11 s, and to 16 s 6 d *per* Dozen.

Cabinet Locks, *Till* Locks, *Scrutore* Locks, in Suit *five* Locks and *one* Key, the Price *per* Suit, is 2 s 6 d, 2 s 9 d, 3 s, 3 s 6 d, 4 s 6 d, 5 s 4 d, and 7 s 6 d *per* Suit.

N. B. *There are higher priced ones, but not of common Uſe.*

Of *inſide Locks* for *Cheſts*, *Deſk*, *Tills*, *Cupboard* and *Boxes*, there are ſundry Sorts, *viz.* X Keys, X Ward, XX Wards, XX and *Bullet Wards*, S *Bitted*, *&c.* which are ſold by the Dozen, *viz.* at 3 s 4 d, at 3 s 10 d, at 4 s 2 d, at 4 s 6 d, at 4 s 9 d, at 5 s 6 d, at 5 s 9 d, at 6 s, at 7 s 6 d, at 8 s, at 9 s 6 d, at 11 s 6 d; at 12 s 6 d, at 14 s 6 d, at 16 s 6 d, at 20 s, at 22 s 6 d, at 27 s, at 30 s, and at 37 s 6 d *per* Dozen.

Ditto, not ſold in *Dozens*, *viz.* at 2 s 3 d, at 3 s, at 3 s 6 d, at 4 s 6 d, at 5 s, at 6 s 6 d, at 7 s, at 9 s, and at 11 s *each*.

Plate Cloſet-locks are ſold by the Dozen, *viz.* at 11 s 6 d, at 12 s 6 d, at 14 s 6 d, at 16 s, and at 20 s *per* Dozen.

Plated Cloſet-locks, with *double* Screws, are ſold *ſingly*, *viz.* at 1 s 6 d, at 1 s 8 d, at 1 s 10 d, at 2 s 6 d, at 2 s 9 d, and at 3 s 6 d *each*.

Plate Cloſet-locks, with *double* Springs, are ſold *ſingly*, *viz.* at 12 s 6 d, at 15 s, and at 17 s *each*.

Ditto, with *ſingle* Springs, ſold *ſingle*, *viz.* at 6 s 6 d, at 7 s 6 d, at 8 s 6 d, and and at 9 s *each*.

Baſtard-Banbury Stock-locks are ſold by the Dozen, *viz.* at 6 s, at 7 s, at 8 s, and at 9 s *per* Dozen.

Livery Stock-locks are ſold by the Dozen, *viz.* at 7 s, at 8 s 6 d, at 9 s 6 d, at 10 s 6 d, at 14 s 6 d, at 16 s 6 d, at 21 s, at 23 s, and at 25 s *per* Dozen.

Plate Stock-locks are ſold by the Dozen, *viz.* at 8 s 6 d, at 9 s, at 11 s 6 d, at 12 s 6 d, at 13 s, at 14 s 6 d, at 15 s, at 16 s 6 d, and to 26 s *per* Dozen.

Spring Stock-locks, *twice* dead and *Spring*, are ſold *ſingly*, *viz.* at 2 s 3 d, at 2 s 5 d, at 2 s 9 d, at 3 s 6 d, at 4 s 6 d, at 5 s 9 d, at 7 s 6 d, at 8 s, and at 10 s *each*.

Spring Stock locks, *twice* dead, are ſold *in Suit*, *viz.* at 11 s 6 d, at 14 s, at 16 s 6 d, at 20 s, at 22 s 6 d, at 25 s, at 26 s, at 33 s, and at 40 s *per* Suit.

Balcony Bolts, ſome are old by the Dozen, *viz.* at 6 s, at 7 s 6 d, at 9 s, at 12 s, at 15 s 6 d, at 18 s, at 22 s 6 d, at 25 s, at 26 s, and at 29 s *per* Dozen.

Some Balcony Bolts are ſold by the Pair, *viz.* at 3 s 3 d, at 3 s 9 d, at 4 s 9 d, at 5 s 3 d, at 5 s 6 d, at 7 s, at 9 s 6 d, and at 12 s 6 d *per* Pair.

Spring Bolts and *Saſh Bolts*, are ſold by the Dozen, *viz.* at 1 s 6 d, at 1 s 9 d, at 2 s 3 d, at 2 s 6 d, at 2 s 9 d, at 3 s 6 d, at 4 s 6 d, at 4 s 9 d, at 5 s 6 d, at 6 s 6 d, and at 10 s *per* Dozen.

Shutter Bolts are ſold by the Dozen, *viz.* at 10 s 6 d, at 12 s 6 d, at 14 s, at 16 s 6 d, and at 18 s 6 d *per* Dozen.

WORKMENS TOOLS. *Adzes* are ſold at 20 d and 2 s a-piece, according to *the Size.*

Augers are ſold *ſingly*, *viz.* thoſe of ½ Inch, at 1 s; ⅝ Inch, at 1 s 2 d; ¾ Inch, at 1 s 3 d; Inch, 1 s 6 d; Inch ⅛, at 1 s 9 d; Inch ¼, at 2 s 2 d; Inch ⅜, at 2 s 6 d; Inch ½, at 2 s 9 d; Inch ⅝, at 3 s 3 d; and thoſe of 2 Inches, at 4 s 3 d. *each.*

Brick Axes are ſold at 2 s 6 d, or 3 s. *each*, according to the *Size.*

Felling Axes are ſold *ſingly*, *viz.* No. 1 at 1 s 6 d; No. 2 at 1 s 7 d; No. 3 at 2 s; No. 4 at 2 s 2 d *each.*

Houſe Axes are ſold *ſingly*, *viz.* at 2 s 6 d; at 3 s; 3 s 4 d; and at 3 s 9 d *each.*

Lopping Axes are uſually ſold by the Dozen, *viz.* No. 1 at 17 s 6 d; No. 2 at 18 s 6 d; No. 3 at 23 s; No. 4 at 25 s *per* Dozen.

Chizels, *Firmers*, and *Gouges* SHOULDERED, are uſually ſold by the Dozen, *viz.* thoſe of an Inch or under at 21 d *per* Dozen. Thoſe from on Inch to an Inch and a half, at 2 s 2 d *per* Dozen. Thoſe from an Inch and a half to two Inches, at 2 s 9 d. Ditto long, at 4 s 6 d *per* Dozen. Mortice Chizels are 4 s 6 d *per* Dozen. Paring Chizels are 7 s 6 d, or 8 s *per* Dozen. The 2d Sort are 8 s 6 d, or 9 s *per* Dozen. Broad Chizels are 7 s 6 d, or 8 s *per* Dozen. Heading Chizels ½ Inch, at 4 s 6 d; ¾ Inch, 6 s 6 d; Inch ditto. Scribing-Chizel are 5 s 6 d *per* Dozen. Turning Chizels and Gouges are 6 s. *per* Dozen.

Socket Gouges are 5 s 6 d *per* Dozen.

Compaſſes, of theſe there are 6 or 7 Sizes, and are ſold from 20 d to 3 s 6 d *per* Dozen.

Compaſſes, with *ſteel Sweeps*, are ſold by the Pair, *viz.* thoſe of 12 Inches, at 2 s 4 d. 13 Inches at 3 s, 14 Inches at 3 s 3 d, and thoſe of 15 Inches at 3 s 4 d *per* Pair.

Timber Dogs are ſold at 29 s *per* hundred Weight.

Gimblets are ſold by the Dozen, *viz.* at 6 d, at 7 d, at 8 d, at 9 d, at 10 d, at 11 d, at 1 s, at 1 s 3 d, at 1 s 4 d, at 1 s 6 d, at 1 s 9 d, at 2 s, at 2 s 6 d, at 3 s, at 3 s 6 d, at 4 s 6 d, and at 6 s *per* Dozen.

Claw Hammers are ſold by the Dozen, *viz.* at 2 s 9 d, at 3 s 9 d, at 4 s, at 4 s 6 d, at 5 s 6 d, at 7 s, and at 8 s *per* Dozen.

Welded cheek Hammers are ſold by the Dozen, *viz.* at 11 s 6 d, at 12 s 6 d, at 14 s, and at 16 s 6 d *per* Dozen.

Lathing Hammers are ſold by the Dozen, *viz.* at 10 s 6 d, at 12 s 6 d, at 14 s 6 d, and at 15 s 6 d *per* Dozen.

Round poled Hatchets are ſold by the Dozen, at 6 s 6 d, at 7 s 6 d, at 8 s 6 d, and at 10 s 6 d *per* Dozen.

Square-poled Hatchets are ſold by the Dozen, *viz.* at 8 s 9 d, at 10 s, at 14 s 6 d, and at 16 s 6 d *per* Dozen.

Joiners Hatchets are ſold from 18 s to 21 s *per* Dozen.

Pincers for *Joiners*, *Farriers*, and *Shoemakers*, are ſold by the Dozen, *viz.* at 4 s 6 d, at 5 s 6 d, at 7 s 6 d, at 8 s 6 d, at 11 s 6 d, at 13 s 6 d, at 16 s, at 21 s, at 27 s 6 d, at 36 s, and at 45 s *per* Dozen.

Compaſs Steel-ſaws are ſold by the Dozen, *viz.* thoſe of 12 Inches, at 8 s 3 d, 15 Inches at 10 s 6 d *per* Dozen.

Grafting Saws are ſold by the Dozen, *viz.* thoſe of 10 Inches at 9 s 6 d, 12 Inches at 12 s 6 d, 14 Inches at 14 s 6 d, 16 Inches at 16 s, and thoſe of 18 Inches at 18 s *per* Dozen.

Hand and Pannel Saws are ſold by the Dozen, *viz.* thoſe of 20 Inches at 22 s, 22 Inches at 25 s 6 d, 24 Inches at 28 s 6 d, and thoſe of 26 Inches, at 30 s *per* Dozen.

Hand and Pannel Saws, hardened Plates, viz. thoſe of 22 Inches at 4 s 6 d, 24 Inches at 5 s, and thoſe of 26 Inches at 5 s 6 d *each.*

Tenant Saws, hardened Plates, are ſold at 55 s *per* Dozen.

Two-hand Peg-tooth, and *Whipſteel Saws,* are uſually ſold *ſingle, viz.* thoſe of 3 Feet at 6 s 9 d, 3 Feet and a half at 7 s 9 d, 4 Feet at 9 s 6 d, 4 Feet and a half at 10 s, 5 Feet at 11 s 6 d, 5 Feet and a half at 12 s 6 d, 6 Feet at 15 s, 6 Feet and a half at 16 s 6 d, 7 Feet at 17 s, 7 Feet and a half at 20 s, 8 Feet at 23 s 6 d, 8 Feet and a half at 25 s, 9 Feet at 30 s 6 d, 9 Feet and a half at 35 s, and thoſe of 10 Feet at 40 s *each.*

Rib Steel-ſaws are ſold *ſingly, viz.* thoſe of 5 Feet at 8 s 3 d, 5 Feet and a half at 9 s 6 d, and thoſe of 6 Feet at 10 s 6 d *each.*

Iron Hand-ſaws are ſold by the Dozen, *viz.* thoſe of 17 Inches at 8 s, 18 Inches at 9 s, 19 Inches at 10 s, 20 Inches at 12 s, 22 Inches at 13 s, 24 Inches at 16 s *per* Dozen.

Iron Two-Hand Peg-Tooth, and *Whip Saws,* are ſold *ſingly, viz.* thoſe of 3 Feet at 3 s 3 d, 3 Feet and a half at 3 s 9 d, 4 Feet at 4 s, 4 Feet and a half at 4 s 6 d, 5 Feet at 5 s, 5 Feet and a half at 5 s 6 d, 6 Feet at 6 s 6 d, 6 Feet and a half at 7 s, and thoſe of 7 Feet at 7 s 9 d *each.*

Stone Saws are ſold at 36 s *per* hundred Weight.

Hand Saw Screws are ſold at 6 s 6 d *per* Groſs.

Hand Saw Setts are ſold at 2 s *per* Dozen.

Ditto, The very beſt at 3 s *per* Dozen.

Brick Trowels are ſold at 10 s *per* Dozen.

Laying Trowels at 10 s *per* Dozen.

Stopping Trowels at 8 s *per* Dozen.

Setting Trowels, at 9 s *per* Dozen.

Stone Trowels, at 10 s 6 d *the* Dozen.

Spades, N° 1, is ſold at 2 s 6 d, N° 2 at 3 s, and N° 3 at 3 s 6 d *each.*

Jacks, or *Hand-ſcrews,* ſingle, are ſold, *per* Pair, *viz.* thoſe of half an Inch at 17 s; 3-4ths of an Inch at 25 s 6 d; 7-8ths of an Inch at 26 s 6 d; Inch at 30 s; thoſe of an Inch and 1-8th at 32 s; and thoſe of an Inch and 1-4th at 40 s *per* Pair.

Jacks, or *Hand-ſcrews (double)* are ſold by the Pair, *viz.* thoſe of an Inch and a quarter, at 42 s; thoſe of an Inch and half at 82 s *per* Pair.

A TABLE *ſhewing briefly the Prices of the moſt common Materials uſed in Building.*

1. BRICKS, at 16 *s. per* Thouſand.
2. Tiles, at 1 *l.* 5 *s. per* Thouſand.
3. Lime, at 12 *s.* 6 *d. per* Hundred, *i. e.* 25 Buſhels.
4. Sand, at 3 *s. per* Load, *i. e.* 36 Buſhels.

5. Nine Inch paving Tiles, at 10 *s.* 6 *d. per* Hundred.
6. Gutter Tiles, at 12 *s. per* Hundred.
7. Hair, at 1 *s.* the Buſhel.
8. Rough Timber, at 2 *l. per* Load, containing 40 Feet.
9. Timber cut to Scantlings fit for Buildings, at 4 *l. per* Load.
10. Plank, at 5 *l. per* Load.
11. Tile Pins, at 1 *s.* 6 *d. per* Buſhel.
12. Withes for Thatching, at 6 *d. per* Hundred.
13. Five Feet Lathes, Heart of Oak, 2 *s.* 2 *d. per* Bundle.
14. Four Feet Lathes, Heart of Oak, at 1 *s.* 11 *d. per* Bundle.
15. Five Feet Lathes, Sap of Oak, at 1 *s.* 6 *d. per* Bundle.
16. Four Feet Lathes, Sap of Oak, at 1 *s.* 4 *d. per* Bundle.

How to Eſtimate *the Charge of erecting any* Houſe *of any* Height *and* Bigneſs *built of* Brick *and* Timber.

BEFORE anv *Gentlemen* or *others* begin to erect a Building, 'tis requiſite to have Draughts or Deſigns drawn upon Paper, Vellum, or the like, not only for Eaſe and Expedition, but for preventing Miſtakes in carrying on the intended Edifice: Which will alſo be of Uſe to prevent the many Errors that may otherwiſe occur in the Eſtimation of the Coſt and Charge thereof. And in large Fabricks it would be proper to have a MODEL, made either of *Paſtboard*, *Wood*, *Clay*, or the like; for thereby the whole *Structure* would be ſeen at one View in Miniature. But however, that you may form a near Eſtimate of the Charge of the Erection of any Edifice, you muſt have given you: *Firſt*, The Dimenſions thereof, not only in Length and Breadth, but alſo in Height, in reſpect of the Number of Stories; for by the Length and Breadth, you may find the Quantity of Squares upon every Floor, and alſo in the Roof and Tiling, and by the Height you may calculate the Number of the Rods of Brickwork contained in the Walls round about, and in the Partition Walls, if any be; and alſo in the Chimnies. Then conſider how many Pair of Stairs, and of what kind: How many Floors to lay, and of what ſort: What Partitions of Timber with Doors, and of what ſort: What Timber in Saſh Frames and Window Lights, and of what ſort: Alſo conſider what, and how many Door-ways, and Windows there are to caſe; what Rooms to wainſcot, and of what ſort of Work: Iron-work, as Nails and Hinges, *&c.* And, in ſhort, all the ſeveral Works muſt be remembered carefully; of which I have already given a particular Account in the foregoing Sections, to which I refer you.

Beſides the above Method of eſtimating, the following Method has likewiſe been much recommended: And as it may poſſibly aſſiſt ſome People to obtain a more particular Satisfaction it is here ſet down.

“ If you would know the Value of a Square of framing of any of the foregoing
“ Articles, with the Timber included, the beſt and moſt infallible Way, is to have
“ firſt a Draught or Plan of the whole Deſign, drawn on Paper, *&c.* and from thence
“ to draw others of every particular Part thereof, *viz.* of the Form or Faſhion of the
“ Front, Back-Side and Ends, with the Number of Studs, Braces, *&c.* with the
“ Length and Scantling of each particular Piece, figured thereon: Alſo of the framed
“ Work of each of the Floors, ſhewing the Number of Joiſts, Trimmers for the
“ Chimney-ways, Stair-ways, *&c.* with the Length and Scantling of the Girders,
“ Joiſts, Trimmers, *&c.* figured thereon: Alſo Draughts of the framed Work of

" every Partition, with the Length and Scantling of every Stud and Brace therein
" contained: Alſo a Draught of the Roof (with their Hips, if any) with the Length
" and Scantling of the principal and ſmall Rafters, Hips, Collar-Beams, *&c.* figured
" in their proper Places, then by the *Inſpectional Table* on *Plate* XXXVII. facing
" Page [81]; if the Work is to be done in *Ipſwich*, you may infallibly proceed by
" theſe Drawings to eſtimate the whole Charge of the framed Work of any Timber-
" Building, or any particular Part thereof."

If you conſider theſe Drawings, you will not only be able to eſtimate the Expence of the Timber required, but alſo the Workmanſhip; for by having therein expreſſed the *Length*, *Breadth*, and *Heighth* of every particular Part thereof, in Feet and Inches, it will be a very eaſy, ſafe, and ſure Way to calculate the exact Number of ſuperficial Feet, Yards, or Squares, contained in a whole Building, or any particular Part thereof; and therefore it is conſequently the moſt ſure and infallible Way to know the whole Charge, finiſhing Work and all included, both internal and external. I would adviſe no Workman to give in the Charge of erecting any Timber-Building, that has not firſt had Regard to the above-mentioned Methods, to come at the Expence thereof. Becauſe, it is impoſſible to do it by Gueſs, or by any other Ways than by this Method, even for the moſt experienced Workman to be ſo exact, but that he muſt either hurt himſelf, or the Maſter he works for; for there can be no general Rule laid down, that will hold good for the Value or Price of a Square of framing for every new Building, unleſs Houſes were built all alike, and of the ſame *Length*, *Breadth*, and *Heighth*, and in every Reſpect the ſame; and the Scantlings of the Timber the ſame in every Particular alſo; for herein it is that the Difficulty lies, the various Forms and Magnitudes of Buildings require different Scantlings of Timber *, and conſequently the Value of the Timber muſt be more or leſs in Proportion thereunto; and therefore it is impoſſible to aſſign or fix any Price *per Square*, that will hold good in general, for the valuing of the framed Work of every Timber-Building.

The Buildings of the City of *London* are valued according to their Rates, of which Rates there are four, *viz.*

1ſt Rate 2 }
2d 3 } Stories, Cellars, and Garret
3d 4 }
4th 5 }

And the naked Building, or Shell of a Brick-Houſe (the naked Floors being finiſhed) is thus valued by the Square or 100 Feet, if in High Streets, *viz.*

1ſt Rate at 25 *l.* }
2d - - - - 35 *l.* } *per* Square.
3d - - - - 45 *l.* }
4th - - - - 50 *l.* }

But theſe Rates may be augmented at the Diſcretion of the Surveyor, or according to the finiſhing the Houſe.

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* See the Table of the Scantling of Timber, on Page 76.

For Story Posts.

The Proportions for *large* Buildings.				The Proportions for *ſmall* Buildings.			
Bearing Poſts of Fir.		*Bearing Poſts of* Oak.		*Bearing Poſts* of Fir.		*Bearing Poſts* of Oak.	
Height	Scantling	Height,	Scantling	Height,	Scantling	Height,	Scantling
if 9 *Feet*,	6 *In. ſq.*	*if* 9 *Feet*,	9 *In. ſq.*	*if* 8 *Feet*,	4 *In. ſq.*	*if* 9 *Feet*,	6 *In. ſq.*
12	8	12	12	11	6	11	8
15	9½	15	15	13	7	13	10

For the Floors.

The Proportions for *large* Buildings.				The Proportions for *ſmall* Buildings.			
Girders of Fir.		*Girders* of Oak.		*Girders* of Fir.		*Girders* of Oak.	
Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling
if 16 *Feet*,	9½ *I. by* 13	*if* 16 *Feet*,	12 *I. by* 14	*if* 16 *Feet*,	8 *I. by* 11	*if* 16 *Feet*,	10 *I. by* 13
20	12 14	20	15 15	20	10 12½	20	12 14
24	13½ 15	24	18 16	24	12 14	24	14 15

Joiſts of Fir.		*Joiſts* of Oak.		*Joiſts* of Fir.		*Joiſts* of Oak.	
Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling
if 6 *Feet*,	5 *In. by* 3	*if* 6 *Feet*,	6 *In. by* 3	*if* 6 *Feet*,	5 *I. by* 2½	*if* 6 *Feet*,	5 *I. by* 3
9	7½ 3	9	9 3	9	6½ 2½	9	7½ 3
12	10 3	12	12 3	12	8 2½	12	10 3

Bridging Joiſts of Fir.		*Bridging Joiſts of* Oak.		*Bridging Joiſts* of Fir.		*Bridging Joiſts* of Oak.	
Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling
if 6 *Feet*,	4 *In. by* 3	*if* 6 *Feet*,	5 *I. by* 3½	*if* 6 *Feet*,	4 *I. by* 2½	*if* 6 *Feet*,	4 *I. by* 3
8	5½ 3	8	6½ 3½	8	5 2¾	8	5½ 3
10	7 3	10	8 3½	10	6 3	10	7 3

For the Roofs.

The Proportions for *large* Buildings.				The Proportions for *ſmall* Buildings.			
Beams or *Tyes* of Fir.		*Beams* or *Tyes* of Oak.		*Beams* or *Tyes* of Fir.		*Beams* or *Tyes* of Oak.	
Length,	Scantling	Length,	Scantling	Length,	Scantling	Length,	Scantling
if 30 *Feet*,	7 *I. by* 8	*if* 30 *Feet*,	8 *I. by* 9	*if* 30 *Feet*,	6 *I. by* 7	*if* 30 *Feet*,	7 *I. by* 8
45	10 11½	45	11 12½	45	9 8½	45	10 11½
60	13 15	60	14 16	60	12 11	60	13 15

Principal Rafters of Fir, *ſcantling*.			*Principal* Rafters of Oak, *ſcantling*.			*Principal* Rafters of Fir, *ſcantling*.			*Principal* Rafters of Oak, *ſcantling*.		
Lgth.	Top.	Botm.	Lgth.	Top.	Botm.	Lgth.	Top.	Botm.	Lgth.	Top.	Botm.
if 24 *ft.*	7 *I.* & 8	8 *I.* & 9	*if* 24 *ft*	8 *I.* & 9	9 & 10	*if* 24 *ft*	5 *I.* & 6	6 *I.* & 7	*if* 24 *ft.*	7 *I.* & 8	8 *I.* & 9
36	8 9	9 10½	36	9 10	10 12	36	6½ 8	8 10	36	8 9	9 10½
48	9 10	10 12	48	10 12	12 14	48	8 10	10 12	48	9 10	10 12

Small Rafters of Fir.		*Small* Rafters of Oak.		*Small* Rafters of Fir.		*Small* Rafters of Oak.	
Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling	Bearing,	Scantling
if 8 *Feet*,	4½ *I. by* 3	*if* 8 *Feet*,	5½ *I. by* 3	*if* 8 *Feet*,	3½ *I. by* 2½	*if* 8 *Feet*,	4½ *I. by* 3
10	5½ 3	10	7 3	10	4½ 2½	10	5½ 3
12	6½ 3	12	9 3	12	5½ 2½	12	6½ 3

PURLINGS muſt be cut to a *Scantling*, from 9 by 8, to 9 by 12, in *large Buildings* where they are framed into the *principal Raſters*; but for *ſmall Buildings*, where they are laid in the *Collar-Beams*, from 4 by 5, to 5 by 6.

CELLS and OVER-WAYS are cut to a *Scantling* from 8 by 9, to 9 by 6.

RAISING PLATES are cut to a *Scantling*, from 8 by 5, to 9 by 6.

BREAST-SUMMERS to ſupport Walls, and *Plates on Walls*, cannot eaſily be brought into any regular Proportion; and muſt therefore be left to the Workman's Diſcretion.

Plate XXXVII

An Inspectional Table, *shewing the Value of one Foot in Length of* Oak, *or any other* Timber, *that's Squar'd to Cut to any* Scantling *or* Size *fit for* Building, *at ye Rate of* Two Shillings *or any other* Price *⅌ Foot Cubical Measure.*

The Scantling or Size of one Side	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12
	D. P.	D. P.	D. P.	D. P.	D. P.	D. P.	D. P.	D. P.	D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.	S. D. P.
2	0.5																				
2½	0.6	1.0																			
3	1.0	1.2	1.4																		
3½	1.1	1.3	1.6	2.0																	
4	1.2	1.5	2.0	2.2	2.5																
4½	1.4	1.7	2.2	2.5	3.0	3.3															
5	1.5	2.0	2.4	2.7	3.2	3.6	4.1														
5½	1.7	2.2	2.6	3.2	3.5	4.1	4.4	5.0													
6	2.0	2.4	3.0	3.4	4.0	4.4	5.0	5.4	6.0												
6½	2.1	2.5	3.2	3.6	4.2	4.7	5.3	5.7	6.4	0.7.0											
7	2.2	2.6	3.4	4.0	4.5	5.2	5.6	6.2	7.1	0.7.4	0.8.1										
7½	2.4	3.1	3.6	4.3	5.0	5.5	6.2	6.7	7.4	0.8.0	0.8.6	0.9.3									
8	2.5	3.3	4.0	4.5	5.2	6.0	6.5	7.2	8.0	0.8.5	0.9.2	0.10.0	0.10.5								
8½	2.6	3.4	4.2	4.7	5.5	6.3	7.0	7.6	8.4	0.9.1	0.9.7	0.10.4	0.11.2	1.0.0							
9	3.0	3.6	4.4	5.2	6.0	6.6	7.4	8.2	9.0	0.9.6	0.10.4	0.11.2	1.0.0	1.0.6	1.1.4						
9½	3.1	3.7	4.6	5.4	6.2	7.1	7.7	8.5	9.4	0.10.2	0.11.0	0.11.7	1.0.5	1.1.3	1.2.2	1.3.0					
10	3.2	4.1	5.0	5.6	6.5	7.4	8.2	9.1	10.0	0.10.6	0.11.5	1.0.4	1.1.2	1.2.1	1.3.0	1.3.6	1.4.5				
10½	3.4	4.3	5.2	6.0	7.0	7.7	8.6	9.5	10.4	0.11.3	1.0.2	1.1.1	1.2.0	1.2.7	1.3.6	1.4.4	1.5.4	1.6.3			
11	3.5	4.4	5.4	6.2	7.2	8.2	9.1	10.0	11.0	0.11.7	1.0.6	1.1.6	1.2.5	1.3.4	1.4.4	1.5.3	1.6.2	1.7.2	1.8.0		
11½	3.6	4.6	5.6	6.5	7.5	8.5	9.4	10.4	11.4	1.0.3	1.1.3	1.2.3	1.3.2	1.4.2	1.5.2	1.6.2	1.7.1	1.8.1	1.9.0	1.10.0	
12	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0	1.6.0	1.7.0	1.8.0	1.9.0	1.10.0	1.11.0	2.0.0

EXPLANATION.

In the first Column towards the Left Hand you have the Scantling or Size of one Side of the Piece, and the Scantling or Size of the other Side upon the Top of all the other Columns; The Figures in every Column but the first towards the Left Hand, shew the Price: those Figures under S *stand for Shillings, and those under* D *for Pence, and those under* P *for so many* Eight *Parts of a Penny.*

Example.

Suppose you would know the Price of a Foot of Stuff whose Sides are 7½ by 6 Inches; Seek in the Left Hand Column of the Table for 7½ and direct your Eye in a Streight Line from thence until you are right under 6 Inches, the Scantling of the other Side placed on the Top of the Column, and in the Angle of meeting you will find sett down 7 D, *4* P, *which is 7 Pence and 4* Eights *of a Penny, the Price sought.* ——— *The same* Rule *is to be observed in finding the Price to any other Scantling.*

N.B. *If you want to know the Price of a Foot of Stuff whose Scantling is larger than any in the Table, seek the Price to half that Scantling, and 4 times that Price is the Price sought.*

Example.

Suppose the Scantling given is 20 by 16, the half is 10 by 8, the Price of 10 by 8 is $\overset{s}{1}.\overset{d}{1}.\overset{p}{2}$. *and 4 times* $\overset{s}{1}.\overset{d}{1}.\overset{p}{2}$. *is* $\overset{s}{4}.\overset{d}{5}.\overset{p}{0}$. *the Price required.*

To make this Table *of Universal Use.*

If at More *than two Shillings, Observe*

If your Price is d.	*⅌ Foot* More *than 2s. viz.t* s. d.	*Add*
3	2 . 3	⅛
4	2 . 4	⅙
6	2 . 6	¼
12	3 . 0	½

Example.

What is the Value of a Foot of Oak or any other Timber 6 Inches by 9 Inches at 2s. 3d. ⅌ Foot Cubic Measure.

1st *I find by the Table that at 2s. ⅌ Foot its Value is* ..... 0. 9d. 0p. ⅛ *of which is 1d. ⅛ or one Penny & one Eighth of a Penny.*

2dly *I Add (that 1d. ⅛)* .... 0. 1. 1.

And I find the Value sought, to be .... 0. 10. 1. *equal to 10d. Half Farthing.*

If at Less *than two Shillings, Observe*

If your Price is d.	*⅌ Foot* Less *than 2s. viz.t* s. d.	*Deduct*
3	1 . 9	⅛
4	1 . 8	⅙
6	1 . 6	¼
12	1 . 0	½

Example.

What is the Value of a Foot of Oak or any other Timber 6 Inches by 9 Inches at 1s. 8d. ⅌ Foot Cubic Measure

1st *I find by the Table that at 2s. ⅌ Foot its Value is* ..... 0. 9. 0. ⅙ *of which is 1d. ½, or one Penny & four Eights of a Penny.*

2dly *I Deduct (that 1d. ½.)* .... 0. 1. 4.

And I find the Value sought, to be .... 0. 7. 4. *equal to 7d. Half Penny.*

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Notwithſtanding the oppoſite Table is ſo eaſy to be underſtood, yet it may be neceſſary to make the following Obſervations.

FIRST, That all Strong or *Binding Joiſts*, ought to be *half* as thick again as *Common Joiſts*; that is, if a *Common Joiſt* be given *three Inches and a half thick*, the *Binding Joiſt* ſhould be *five Inches and a quarter thick*, although of the *ſame Depth*.

Secondly, That if Conveniency will not admit of *Poſts* in Partitions being *ſquare* (which is often the Caſe) obſerve *this Rule*: Multiply the Square of the Side of the Poſts, as here given *by itſelf*. *For Inſtance*, If it be nine Inches ſquare, then nine Times nine, is eighty-one: Now to keep this Poſt ſo as to have the ſame Strength, find out ſome Number that ſhall agree thereto:—Suppoſe the Partition to be ſix Inches and three Quarters thick, then your Poſt muſt be twelve Inches the other Way, which multiplied together, the Product is eighty-one, equal to nine Times nine, and is nearly of the ſame Strength.

Thirdly, In Poſts that go *two* or *three* Stories high, there is no Neceſſity to obſerve this Proportion, becauſe they meet with *a Tye* at every *Floor*. Suppoſe a *Poſt* was required, of *thirty Feet* high, and *three* Stories in this Heighth, *two* of *eleven Feet*, and *one* of *eight*; find out a *Poſt* of FIR, of *eleven* Feet high, which Scantling is ſix Inches *ſquare*, equal to *thirty ſix* ſquare Inches, which *double* for the *two* Stories; then take that of *eight* Feet high, whoſe Scantling is *four* Inches *ſquare*, equal to *ſixteen ſquare Inches*, which being *all added together*, make 88 *ſquare Inches*; ſo that ſuch a *Poſt* ſhould be *about nine Inches and an half ſquare*: On Occaſion, as it riſes, in each Story, it may be leſſened.

I am not ſo rigid, as to inſiſt that the Scantlings, as ſet down in this Table, ought never to be departed from: No, they may be varied in ſome Reſpects, as the Workmen ſhall ſee fit: Nevertheleſs, the Uſefulneſs of this Table will appear, if it is compared with the Scantlings of Timber, as ſettled by Act of Parliament, for Rebuilding the City of *London*, after the Fire in 1666.

And here it may be proper to take Notice of the Obſervations of a judicious Builder, *viz.*
" That there is a *Moiſture* in all Timber; for which Reaſon, all *Bearing-Timber* ought to have
" a moderate *Camber* or *Roundneſs*, for till that Moiſture is in ſome Sort dried out, the ſaid
" Timber will ſag with its own Weight: But then obſerve, that *Girders* are beſt truſſed when
" they are firſt ſawn out, for by their drying and ſhrinking, it tightens the Truſſes in them yet
" the more.

" We are alſo to obſerve, that all *Beams*, or *Ties*, be cut, or forced in Framing, to a *Cam-*
" *ber*, or *Roundneſs*, ſuch as *an Inch in the Length of eighteen Feet*; and that *Principal Rafters*
" be alſo cut, or forced up to a *Camber*, or *Roundneſs*, as before: Becauſe, all *Truſſes*, though
" ever ſo well framed, by the ſhrinking of the Timber, and Weight of the Covering, will
" ſag, and ſometimes ſo much as to offend the Eye of the Beholder; ſo that by this Prepara-
" tion, your Truſs will always appear well.

" We are alſo to obſerve, That all *Caſt-Bays*, either in *Floors*, or *Roofs*, do not exceed
" *twelve Feet*, if poſſible; that is, do not let your *Joiſts* in *Floors*, your *Purloins* in *Roofs*, *&c.*
" exceed *twelve Feet* in their *Length*, or *Bearing*; but rather let the Bearing be *eight*, *nine*,
" or *ten Feet*; which ſhould be regarded in forming a Plan.

" You are alſo to obſerve, That in *Bridging-Floors*, you do not place your *binding* or *ſtrong*
" *Joiſts* above *three*, *four*, or *five Feet* a-part; and that your *Bridgings* or *Common Joiſts* are
not above *ten* or *twelve Inches* apart; that is, between one Joiſt and the other.

" And here alſo obſerve, Never to make *double Tenants*, or *Tenons* for bearing Uſes, ſuch as
" *Binding-Joiſts*, *Common-Joiſts*, or *Purloins*; for, in the *firſt* Place, it weakens very much
" whatever you frame it into; and, in the *ſecond* Place, it is a Rarity to have a Draught in
" both Tenons; that is, to draw your Joint cloſe by the *Pin*; for the ſaid *Pin* by paſſing thro'
" both Tenons (if there is a Draught to each) muſt bend ſo much, that without the *Pin*
" be as tough as Wire, muſt needs break in driving, and conſequently do more hurt
" than good."

Several dreadful Fires having happened in and about London *(in the late* Queen Ann*'s Time) the Rage and Violence whereof, it was apprehended, might, in a great Meaſure, have been prevented, if Party Walls of Brick had been built between Houſe and Houſe, from the Foundation to the Top of the Roof, and leſs Timber in the Front of Houſes: For the preventing the like Miſchiefs for the future, the Legiſlature then enjoined,*

THAT from, and after the Firſt Day of *May*, in the Year 1708, every Houſe that ſhould be built within *the Bills of Mortality* (except on *London-Bridge)* ſhould have Party-Walls between Houſe and Houſe, wholly of Brick or Stone; and of *two* Bricks thick in the Cellar and Ground-Stories, and *thirteen Inches* thick upwards, from the Foundation quite through each Houſe, and *eighteen Inches* above the Roof; and that no Modellion or Corniſh of Timber under the Eaves ſhould be ſuffered in any new Houſe; but that all Front and Rear Walls ſhould be built of Brick or Stone, to be carried *two Feet and an Half* high, above the Garret Floor, and coped with Stone or Brick. And that, if any new Houſes ſhould be built, within the Places aforeſaid, contrary to theſe Injunctions, the Owner of every ſuch Houſe, and Head Builder, or Workmen, ſhould each of them forfeit 50 *l.* one Moiety to the Informer, and the other Moiety to the Poor of the Pariſh; to be levied by Warrant, under the Hands and Seals of *two* Juſtices of Peace, where ſuch Building ſhould be erected, or where ſuch Workmen ſhould inhabit, by Diſtreſs and Sale of Goods, upon Conviction upon Oath, or upon the View of *one* Juſtice of Peace: And for Want of Diſtreſs, that the Offender ſhould be impriſoned by Warrant from the ſaid *two* Juſtices, until Payment; and that the Share of ſuch Forfeitures, appointed to go to the Poor, ſhould be paid into the Hands of the Churchwardens, who are to give a Receipt, and account for the ſame.

ABOUT *twelve Months* after the above Injunctions took Place, the Legiſlature found it neceſſary to render it more effectual, and further enjoined, that from, and after the Firſt Day of *May*, in the Year 1709, That all, and every Houſe, and Houſes, that ſhould be built within the Bills of Mortality (except Houſes on *London-Bridge*, and on the River of *Thames*, below Bridge) ſhould have Party-Walls between Houſe and Houſe, wholly of Brick or Stone (except Door-Caſes, Windows, Lentils, Breaſt Summers, Story Poſts, and Plates) of *two* Bricks thick, in the Cellar, and *one Brick and an Half* thick upwards, to the Top of the Garret-Floor; and that all Gable Ends ſhould be *one Brick* in Length, and *eighteen Inches* above the Roof, and ſhould have no Beams or Rafters in the Brick-works of the Gable Ends. ALSO, to prevent Law-Suits and Differences about Party-Walls, it was enjoined, that all Party-Walls ſhould be built *nine Inches* on each Man's Ground, whether the old Party-Wall ſhould be of Brick, Stone or Timber; and that the firſt Builders ſhould have Power to pull down the ſame, and build up the new Party-Wall, and be paid by the *Owner* of the next Houſe, after the Rate of *five Pounds per Rod*, as ſoon as he ſhould have built the ſaid Party-Wall; and for all Houſes to be built, that will not yield the Rent of 20 *l. per Annum*, more than the Ground-rent, to be left to the Diſcretion of the Builders; provided that all Party-Walls be built with Brick. AND further, that all Chimney-Jambs, and Backs, ſhould be *nine Inches* thick, from the Cellars to the Roof; and that all Withs in the Inſide of ſuch Chimnies, ſhould be *four Inches and an Half* in Breadth, and the Funnels plaiſtered, or pargetted in the Inſide from the Bottom to the Top; and that all Chimnies ſhould be arched under the Hearths with Brick (except upon a Groundfloor) and that no Timber ſhould lie nearer than *five Inches* to any Chimney-Funnel, or Fireplace; and that all Mantles between the Jambs, be arched over with Brick; and that no Wood, or Wainſcot, ſhould be placed, or affixed to the Front of any Jamb or Mantle of any Chimney, nearer than *five Inches*, from the Inſide of ſuch Jamb or Mantle; and that all Gable Ends, called *nine Inches* thick, in Party-Walls, ſhould be rendered on the rougheſt Side; and that all Stoves and Boilers, Coppers and Ovens, hereafter to be ſet up with Brick or Stone, ſhould not be nearer than *nine Inches* to the adjoining Houſe; and that no Timber ſhould lie nearer than *five Inches* to any Fire-place or Flew.

AND becauſe it had been found, that great Damage frequently happened to Houſes by Fire, as well as conſtant Decay and Ruin, by ſetting Brick-work upon Timber, it was alſo enjoined, that from, and after the Firſt Day of *June*, 1709, no Brick or Stone-work in the Fronts, or Party, or Partition-Walls, of any Houſe, Tenement, or other Building whatſoever, which ſhould be erected upon any new or old Foundation, within *London* and *Weſtminſter*, or the Liberties thereof, ſhould be ſupported, depend, or otherwiſe bear upon any Sort of Timber, or Wood-work (excepting upon Piles and Planks, where they are abſolutely neceſſary for Foundations in marſhy and unſound Ground, and excepting Houſes upon *London Bridge*, and on the *Thames* below Bridge) upon Pain that every Perſon ſo offending, ſhould, for every Offence, ſuffer Impriſonment for *three* Months. And becauſe it had been experienced, that Workmen ſetting Frames of Wood for Doors and Windows, very near, and often quite Ranging with the outſide Face of the Wall, by which Means, they ſoon rot and periſh; occaſioning great Coſt and Expence, in perpetual Repairs; for Preventing of which, it was alſo enjoined, that from, and after the Firſt Day of *June*, 1709, No Door-Frame, or Window-Frame of Wood, to be uſed in any Houſe or Building, which ſhall be erected upon old or new Foundations, within the Cities of *London* and *Weſtminſter*, or the Liberties thereof (except Houſes on *London-Bridge*, and on the River of *Thames* below Bridge) ſhall be ſet nearer than *four Inches* to the outſide Face of the Wall.

About *ſixteen Years* after the Commencement of the Injunctions above-mentioned, ſeveral Doubts and Diſputes aroſe, touching the Power of the *firſt* Builder to enter into the next adjoining Houſe, to ſhore and ſupport the ſame; and at whoſe Expence, during the Time, the Party-Wall ſhould be pulling down, and rebuilding: As alſo concerning what Share of the Charges of the Building of Party-Walls, ought to be borne by the *Owners* and *Occupiers* of Houſes, who have *different Intereſts* therein: I ſay, for theſe Reaſons, it was found neceſſary to explain and amend the above mentioned Injunctions, by adding to them what follows, *viz.* That from, and after the Twenty-fourth Day of *June*, in the Year 1725, all Perſons, who ſhould erect or build, or cauſe to be erected or built, upon any old or new Foundation, or Foundations, a Houſe, or Houſes, within the Bills of Mortality, or within the Pariſhes of St *Mary la Bone*, and *Paddington*, *Chelſea*, and St. *Pancras* in *Middleſex* (except Houſes on *London-Bridge*, or on the River of *Thames* below Bridge) and who ſhould think it neceſſary to pull down any Partition-Wall, ſhould (if the *Owner* of ſuch Houſe will not, or through Diſability cannot agree) give *three Months* Notice in Writing to ſuch *Owner* or *Occupier*, to whom any Part of the Wall belongs, of his, hers, or their Intention to pull down ſuch Party-Wall, to the Intent, that before ſuch Party-Wall ſhall be pulled down, the ſame may, within the Space of *one Month*, next after ſuch Notice, be viewed by *four* Workmen; *two or more* of ſuch Workmen to be named by the firſt Builder, and the other *two or more* by the *Owner*, or *Tenant*, or *Occupier* of the next Houſe to that, which is intended to be pulled down; and in Caſe, either of the ſaid Parties, ſhould, in *three Weeks* (after ſuch Notice) refuſe or neglect to name ſuch Workmen, that then the other of the ſaid Parties ſhould name *four or more* Workmen, who ſhould view the Party-Wall, intended to be pulled down; and without Conſent, the ſame ſhould not be pulled down, unleſs the *major Part* of ſuch Workmen, ſhould certify in Writing, under their Hands, to the Juſtices of the Peace in their next general Quarter Seſſions of the Peace, to be holden for the City or County, where ſuch Party-Wall is intended to be pulled down, that ſuch Party-Wall is defective and ruinous, and ought to be pulled down; and if any Perſon, or Perſons, ſhould think him, her, or themſelves aggrieved by ſuch Certificate, the Juſtices ſhould upon Complaint, ſummon before them *one or more of* any ſuch Workmen, and ſuch other Perſons as they ſhall think fit; and ſhould examine the Matter upon Oath, and make ſuch Order, or Orders, in the Premiſſes, as they ſhould think juſt, and reaſonable, and that the Determination of the Juſtices ſhould be final and concluſive, to all Parties, without any Appeal from the ſame. And it was likewiſe enjoined, that, if within *three Days* after ſuch Certificate made by the Workmen, a Copy thereof be delivered to the *Owner* or *Occupier* of ſuch next Houſe, or left there; and there be no Appeal from the ſame, within the Time aforeſaid: In every ſuch Caſe, if ſuch *Owner* and *Occupier* ſhould neglect or refuſe to ſhore and ſupport his, hers, or their Houſes, within *ſix Days* after the Time allowed for Appeal, that then it ſhould and may be lawful to, and for the firſt Builder, or Builders, giving Notice as aforeſaid, to enter into ſuch Houſe or Houſes (at all ſeaſonable Times) with Workmen and Materials to ſhore and ſupport the ſame, at the Charge of ſuch *Owner*, or *Occupier*; and afterwards that it ſhould be lawful for the firſt Builder, or Builders, to build up a new Party-Wall; and within *ten Days* after ſuch Party-Wall ſhould be built, ſuch firſt Builder, or Builders, ſhould in Writing, leave at ſuch next Houſe, or with the *Owner* or *Occupier* thereof, a true Account of the Number of Rods in ſuch Party-Wall; and one half of the Expence thereof, after the Rate of 5 *l. per Rod*, ſhould be paid by the *Owner* or *Owners* of ſuch Houſe, who are intitled to the improved Rent thereof; and that it ſhould be lawful for ſuch *Tenant*, or *Occupier*, to pay the firſt Builder for the ſame, as alſo for the ſhoring and ſupporting the Houſe, after he ſhould have built ſuch Party-Wall, and to deduct the ſame out of the firſt Rent, that ſhould be due from him, or her, to ſuch Owner or Owners; and in Caſe of Neglect, or Refuſal to pay within *twenty-one Days* after Demand, then that it ſhould be lawful for the firſt Builder, or Builders, his, her, or their Executors, or Adminiſtrators, to ſue ſuch Owner, or Owners, for ſuch their Proportion of the Expences of Building and Shoring, in any Court at *Weſtminſter*. And it was alſo enjoined, that it ſhould not be lawful, to make or have in any Houſe built from, and after the Twenty-fourth of *June*, in the Year 1725, any Party-Wall, within the Limits aforeſaid, any Door-Caſe, Window, Lentil, Breaſt-Summer, or Story-Poſts or Plates whatſoever,

ever, unleſs where *two or more* Houſes ſhould be laid together, and ſo uſed or occupied, as one Houſe only; and during the Time of ſuch Uſage, and no longer, upon Pain that the Owner, or Owners of ſuch Houſe, ſhould for every ſuch Offence, forfeit 50 *l.* But that ſuch Door-Caſe, Window, Lentil, Breaſt-Summer, or Story Poſts, or Plates, may be put in the Front of ſuch Houſe, or Building, for the Conveniency of a Shop or Shops only.

AND becauſe it appeared, that ſeveral old Houſes, in the Limits aforeſaid, have inſtead of one Party-Wall, two old Timber-Walls or Partitions, one belonging to each Houſe, and ſeparate from each other; and ſince Diſputes may ariſe, concerning the Pulling down and Rebuilding the ſame; it was alſo enjoined, that the firſt Builder, giving *three Months* Notice, as aforeſaid, to the *Owner* or *Occupier*, or *Owners* and *Occupiers*, ſhould have Power to pull down the two old Timber-Walls, or Partitions, which ſeveral Houſes within the Limits aforeſaid, have inſtead of Party-Walls, and build a new Brick Party-Wall, and ſhould be paid for ſuch Party-Wall, as before directed.

BUT that it ſhould not be lawful for any ſecond Builder or Builders, or his, her, or their Executors, Adminiſtrators or Aſſigns, on any Account whatſoever, to make Uſe of any Party-Wall of a Houſe ſtanding ſingly, and Fence-Wall, or to lay any Wood or Timber, or cut any Hole for Cup-boards, Preſſes, or any other Uſes in ſuch Party-Walls, on Penalty of 50 *l.*

ALL Penalties hereby impoſed, are to be ſued for * as beforementioned; and one Half thereof ſhall be to the Informer or Informers, and the other Half to the Poor of the Pariſh where ſuch Offence ſhall be committed.

THE Conviction for the foreſaid Forfeitures, after the 25th Day of *June*, 1725, ſhall be before *two* Juſtices of the Peace, at the leaſt.

N. B. That all ſuch firſt Owners, Head Builders, or Workmen, who had or ſhould inadvertently offend againſt theſe Injunctions, were allowed them till the *29th Day of December*, in the Year 1727, to rectify their Defects, paying the Informer reaſonable Coſts.

I INTENDED *to have omitted what related to Party-Walls, in an Act of the 19th of King* Charles II. *for Re-building the City of* London *after the Fire in* 1666, *becauſe it is now looked upon obſolete; but leſt I ſhould be blamed for ſo doing, I have here inſerted it, together with the* General Rules *the Builders were* at that Time *obliged to obſerve.*

IT was then enjoined, that the Surveyors or Superviſors to be appointed, and every of them, within their ſeveral Precincts, ſhould take Care, that in Building of all Houſes within the City of *London*, and Liberties thereof, there be, and it is hereby enacted by the Authority aforeſaid, That there ſhould be Party-Walls, and Party-Peers, ſet out equally on each Builder's Ground, to be built up by the firſt Beginner of ſuch Building; and that convenient Toothing be left in the Front Wall by the ſaid firſt Builder, for the better joining of the next Houſe that ſhould be built to the ſame: And that no Man ſhould be permitted by the ſaid Surveyors, to build on the ſaid Party-Wall, or on his own contiguous Ground, until he had fully reimburſed the ſaid firſt Builder the full Moiety of the Charges of the ſaid Party-Wall, and Peers, together with Intereſt for the ſame, after the Rate of *ſix Pounds per Cent. per Annum*, for Forbearance thereof, to be accounted from the Beginning of the ſaid firſt Building. And in Caſe any Difference ſhould ariſe between the firſt and latter Builders, concerning the true Value of the ſaid Charge, that then the ſame ſhould be referred to the Alderman of that Ward where ſuch Building ſhould be, and to his Deputy, to mediate an Agreement of ſuch Difference; and where the ſaid Alderman and his Deputy, or one of them, ſhould be Parties, or where they could not compoſe ſuch Difference, as aforeſaid, that then the Matter ſhould be referred to the Examination of the Lord Mayor and Court of Aldermen, who ſhould hear and finally determine the ſame, without any Appeal to be had.

GENERAL RULES for Re-building *London* in 1666.

I. *In every Foundation within the Ground, add* one *Brick in Thickneſs to the Thickneſs of the Wall, next above the Foundation, to be ſet off in* three *Courſes equally on both Sides.* II. *That no Timber be laid within* twelve Inches *of the foreſide of the* Chimney Jambs; *and that all* Joiſts *on the* Back *of any* Chimney, *be laid with a* Trimmer *at* ſix Inches *Diſtance from the Back.* III. *That no Timber be laid within the* Funnel *of any* Chimney, *upon Penalty to the Workman for every Default,* Ten Shillings, *and Ten Shillings* every Week *it continues unreformed.* IV. *That no* Joiſts *or* Rafters *be laid at greater Diſtances from one to the other, than* twelve Inches, *and no* Quarters *at greater Diſtance than* fourteen Inches. V. *That no* Joiſts *bear at longer Length than* ten Feet; *and no* ſingle Rafters *at more in Length than* nine Feet. VI. *That all* Roofs, Window-Frames, *and* Cellar-Floors, *be made of* Oak. VII. *That all* Tile-pins *be of* Oak. VIII. *No* Summers *or* Girders *to lie over the* Head *of Doors and Windows.* IX. *No* Summer *or* Girder *to lie leſs than* ten Inches *into the Wall; no* Joiſts *than* eight Inches, *and to be laid in* Loam.

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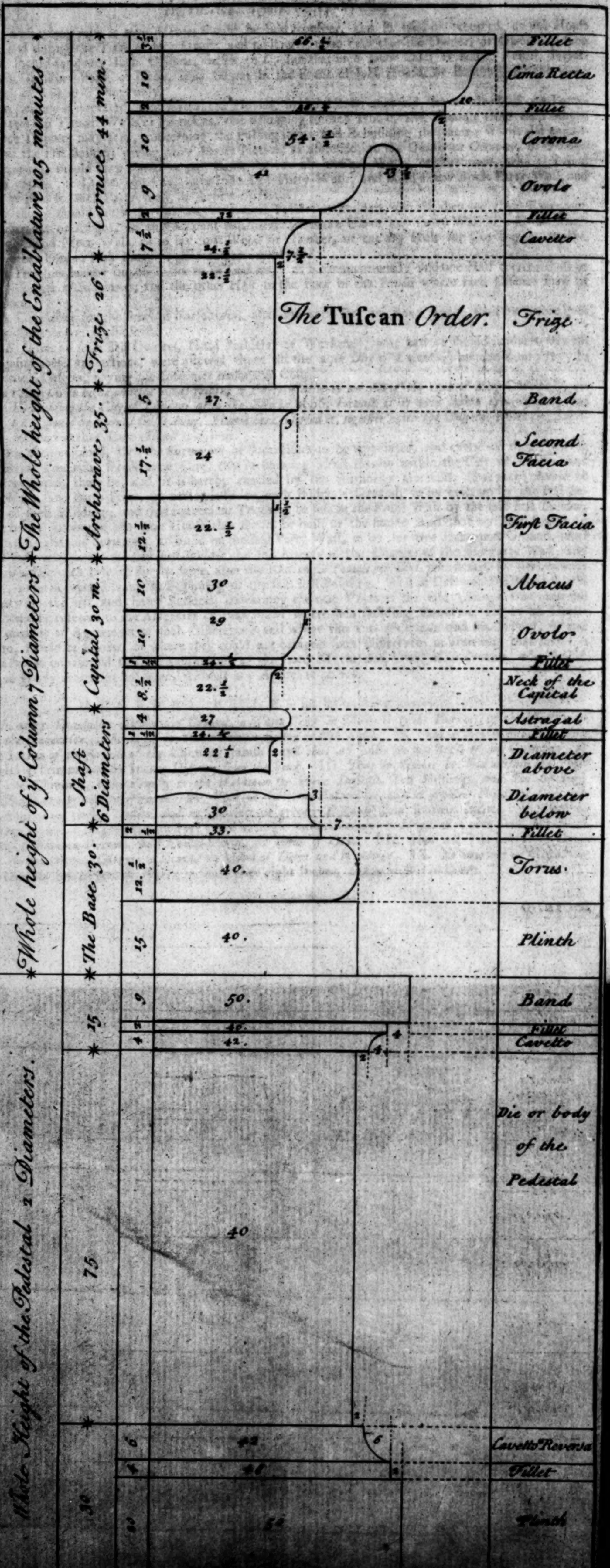
* In any Court at *Weſtminſter*.

Plate 4th


The Tuscan Order.
The Whole height of the Entablature 105 minutes
Cornice 44 min.
Frize 26.
Architrave 35.
Whole height of yᵉ Column 7 Diameters
Capital 30 m.
Shaft 6 Diameters
The Base 30.
Whole Height of the Pedestal 2 Diameters.
15
75
30
Fillet
Cima Recta
Fillet
Corona
Ovolo
Fillet
Cavetto
Frize
Band
Second Facia
First Facia
Abacus
Ovolo
Fillet
Neck of the Capital
Astragal
Fillet
Diameter above
Diameter below
Fillet
Torus
Plinth
Band
Fillet
Cavetto
Die or body of the Pedestal
Cavetto Reversa
Fillet
Plinth
66. 1/2
54. 1/2
41
31
24. 1/2
22. 1/2
27.
24
22. 1/2
30
29
24. 1/2
22. 1/2
27
24. 1/2
22 1/2
30
33.
40.
40.
50.
40.
42.
40
42
46
50

THE
London ART *and* METHOD
OF
BUILDING.

PART the Second

Containing the FIVE ORDERS *of* COLUMNS *in* ARCHITECTURE.

CHAP. I.

Of the Tuſcan *Order.*

PLATE IV.

THIS ORDER had its Original in *Tuſcany*, a Place very remarkable in *Italy*, whence the Name is derived.

The Shaft of this Column is ſix Diameters, the Baſe and Capital are each half a Diameter, ſo that including Baſe and Capital, it is ſeven Diameters high; it diminiſhes a Quarter of the Diameter, the principal Parts thereof are as followeth, *viz.*

		By my Method.					By Mr. *Gibbs*'s Method.					Builders Repoſitory.				
		Mod.	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*
Entablature	Cornice	0	44	105 or	1	45	0	45	105 or	1	45	0	45	105 or	1	45
	Frize	0	26				0	30				0	30			
	Architrave	0	35				0	30				0	30			
Column	Capital	0	30	420 or	7	0			420 or	7	0			420 or	7	0
	Shaft	6	0													
	Baſe	0	30													
				525 or	8	45										
Pedeſtal	Cornice	0	15	120 or	2	0	0	16⅜	131¼ or	2	11¼	0	22	131¼ or	2	11¼
	Body or Die	1	15				1	11				1	5½			
	Baſe and Plinth	0	30				0	43⅞				0	43¾			
				645 or	10	45	Total		656¼ or	10	56¼			656¼ or	10	56¼

So that the whole Height of this Column and Entablature, excluſive of the Pedeſtal, by my Method, is 525 Minutes, or 8 Modules 45 Minutes; and with its Pedeſtal 645 Minutes, or 10 Diameters and 45 Minutes.

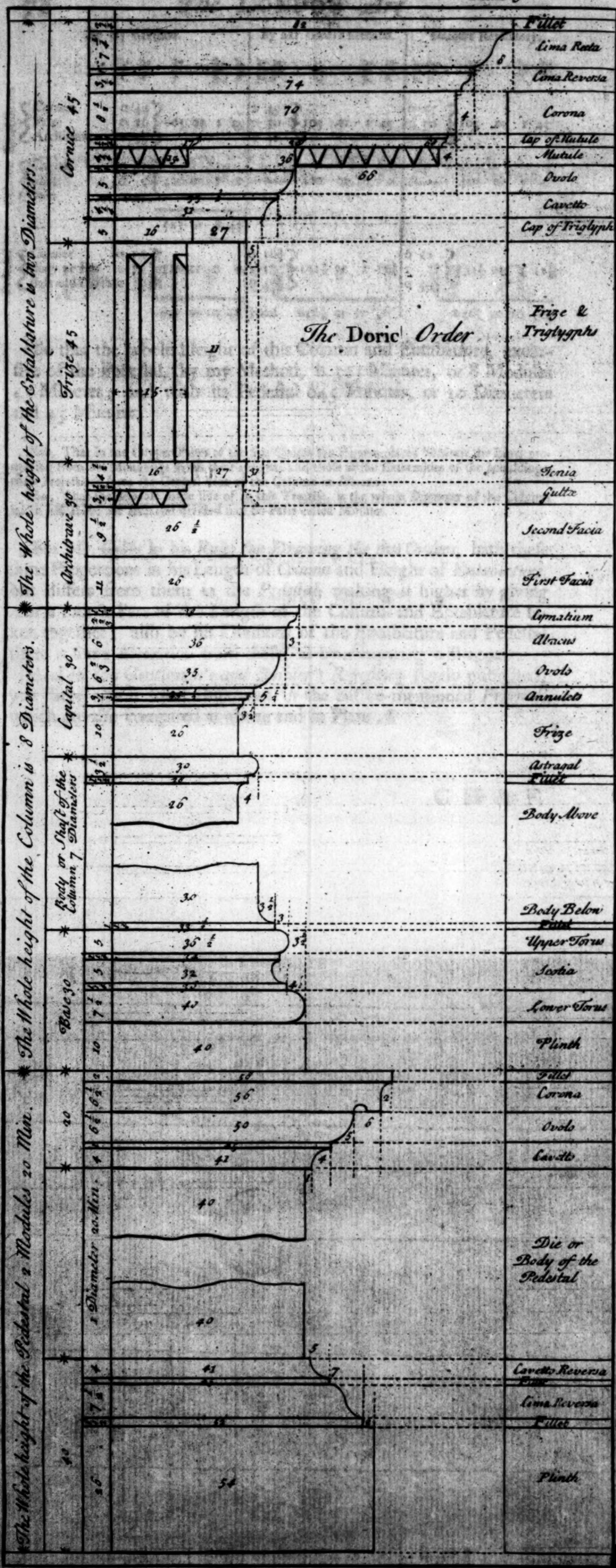
Note, That in the Copper-Plates of the *five* Orders the Figures placed between the Lines proceeding from the Mouldings ſhews their Height, and thoſe at the Extremities of the Mouldings, their Projections from the Central Line of the Column in *Minutes*.

Note, That the Module made Uſe of in this Treatiſe, is the whole Diameter of the Column taken juſt above the Baſe and divided into 60 Parts called Minutes.

But Mr. *Gibbs* in his *Rules for Drawing the five Orders*, hath theſe ſame Proportions in his Length of *Column* and Height of *Entablature*, but differs from them in the *Pedeſtal*; making it higher by giving *that* a fourth Part of the Length of the Column and Entablature taken together; alſo by his Diviſions of the Entablature and Pedeſtal there is ſome Alteration from theſe, as by comparing will appear.

And in the *Gentleman's and Builder's Repoſitory* (lately publiſhed) you have alſo a ſmall Difference in the before-mentioned *Pedeſtal*, which are alſo compared as above and in Plate *A*.

CHAP.


The Doric Order
The Whole height of the Entablature is two Diameters.
The Whole height of the Column is 8 Diameters.
The Whole height of the Pedestal 2 Modules 20 Min.
Cornice 45
Frize 45
Architrave 30
Capital 30
Body or Shaft of the Column 7 Diameters
Base 30
20
1 Diameter 20 Min.
30
Fillet
Cima Recta
Cima Reversa
Corona
Cap of Mutule
Mutule
Ovolo
Cavetto
Cap of Triglyph
Frize & Triglyphs
Tenia
Guttæ
Second Facia
First Facia
Cymatium
Abacus
Ovolo
Annulets
Frize
Astragal
Fillet
Body Above
Body Below
Fillet
Upper Torus
Scotia
Lower Torus
Plinth
Fillet
Corona
Ovolo
Cavetto
Die or Body of the Pedestal
Cavetto Reversa
Fillet
Cima Reversa
Fillet
Plinth

B. Cole Scul

CHAP. II.

Of the Doric *Order.*

PLATE V.

THIS Order had its Original and Name from the *Dorians*, a *Grecian* People which dwelt in *Aſia.*

The Shaft of this Column is ſeven Diameters high, the Baſe and Capital are each half a Diameter, which makes the Column (including Baſe and Capital) 8 Diameters high, it diminiſhes $\frac{1}{7}$ of its Diameter: The Entablature is two Diameters or a Quarter of the Height of the Column; the Trigliphs are each half a Diameter wide, and ſo are the Bells that are placed over and under them. The Metops (or Spaces between the Trigliphs) are ſquare. Its principal Parts are as follow, *viz.*

		By my Method.					By Mr. *Gibbi's.*					Builders Repoſitory.				
		Mod.	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*
Entablature	Cornice	0	45	120 or	2	0	0	45	120 or	2	0	0	45	120 or	2	0
	Frize	0	45				0	45				0	45			
	Architrave	0	30				0	30				0	30			
Column	Capital	0	30	480 or	8	0			480 or	8	0			480 or	8	0
	Shaft	7	0													
	Baſe	0	30													
				600 or	10	0										
Pedeſtal	Cornice	0	20	140 or	2	20	0	18¾	150 or	2	30	0	21½	150 or	2	30
	Body or Die	1	20				1	21¼				1	25¾			
	Baſe and Plinth	0	42				0	50				0	42¾			
				740 or	12	20			750 or	12	30			750 or	12	30

So that the whole Height of this Column and Entablature, excluſive of the Pedeſtal, by my Method, is 600 Minutes, or 10 Modules, with its Pedeſtal 740 Minutes, or 12 Modules 20 Minutes.

But Mr. *Gibbs* and the *Builder's Repoſitory* alſo vary in this *Order* as may be ſeen by the Scheme annexed, and by Plate *A.*

C H A P. III.

Of the Ionic *Order.*

P L A T E VI.

THE *Ionic* Order had its Original in *Ionia*, a Province in *Aſia*, becauſe one *Ion* in *Ionia* firſt invented it; who is ſaid to have erected a Temple of this Order to the Goddeſs DIANA.

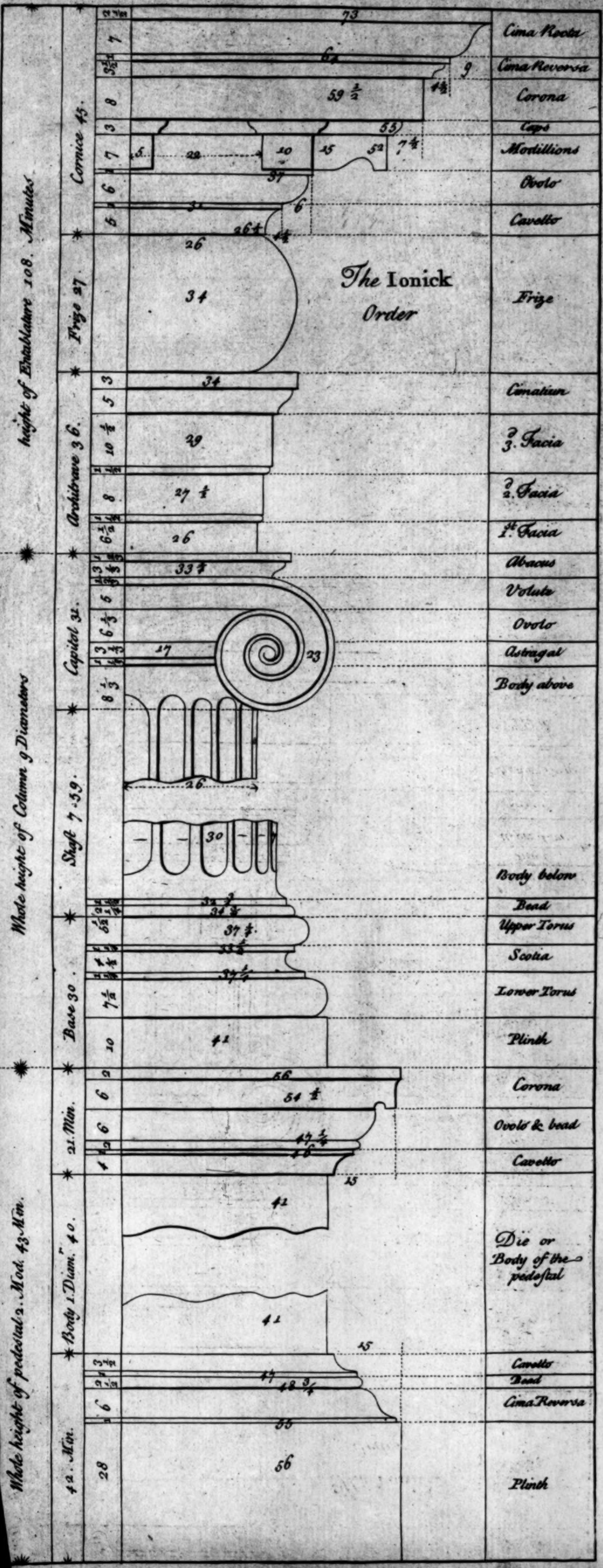
This Column, with its Baſe and Capital, is 9 Diameters, and diminiſhes $\frac{2}{11}$ of its Diameter; its Entablature is equal to one fifth of the Height of the Column; the Pedeſtal is 2 Modules 42 Minutes. The principal Parts thereof are as follow, *viz.*

		By my Method.					By Mr. *Gibbs.*					Builders Repoſitory.				
		Mod.	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*
Entablature	Cornice	0	45	108 or	1	48	0	43	108 or	1	48	0	45	108 or	1	48
	Frize	0	27				0	$32\frac{1}{2}$				0	27			
	Architrave	0	36				0	$32\frac{1}{2}$				0	36			
Column	Capital	0	31	540 or	9	0			540 or	9	00			540 or	9	00
	Shaft	7	59													
	Baſe	0	30													
				648 or	10	48										
Pedeſtal	Cornice	0	21	163 or	2	43	0	$20\frac{1}{4}$	162 or	2	42	1	$23\frac{1}{7}$	162 or	2	42
	Body or Die	1	40				1	$27\frac{3}{4}$				1	$32\frac{4}{7}$			
	Baſe and Plinth	0	42				0	54				0	$46\frac{2}{7}$			
				811 or	13	31			810 or	13	30			810 or	13	30

So that the whole Height of this Column, excluſive of its Pedeſtal, by my Method, is 648 Minutes, or 10 Modules 48 Minutes: With its Pedeſtal 811 Minutes, or 13 Modules 31 Minutes.

This Order hath a greater Variation than the laſt, from the aforeſaid Authors, in the Entablature, as well as the Pedeſtal, as above, and by Plate A.

C H A P.


The Ionick Order
Whole height of Column 9 Diameters
height of Entablature 108. Minutes
Whole height of pedestal 2. Mod. 43 Min.
Cornice 45.
Frize 27
Architrave 36.
Capitol 32.
Shaft 7 : 59.
Base 30.
21. Min.
Body 1. Diam.r 40.
12. Min.
Cima Recta
Cima Reversa
Corona
Caps
Modillions
Ovolo
Cavetto
Frize
Cimatium
3.d Facia
2.d Facia
1.st Facia
Abacus
Volute
Ovolo
Astragal
Body above
Body below
Bead
Upper Torus
Scotia
Lower Torus
Plinth
Corona
Ovolo & bead
Cavetto
Die or Body of the pedestal
Cavetto
Bead
Cima Reversa
Plinth
73
62
59 1/2
55
52
7 1/4
9
4 1/2
10
15
22
5
37
31
6
26 1/4
1 1/2
26
34
34
29
27 1/4
26
33 1/4
17
23
26
30
32 1/2
34 1/2
37 1/2
33 1/2
34 1/2
41
56
54 1/2
47 1/4
46
45
41
41
45
47
48 3/4
55
56
7
3 1/2
8
3
7
6
5
3
5
10 1/2
8
6 1/2
5
6 1/3
8 1/3
6 1/2
7 1/2
10
2
6
6
4
3 1/2
6
28

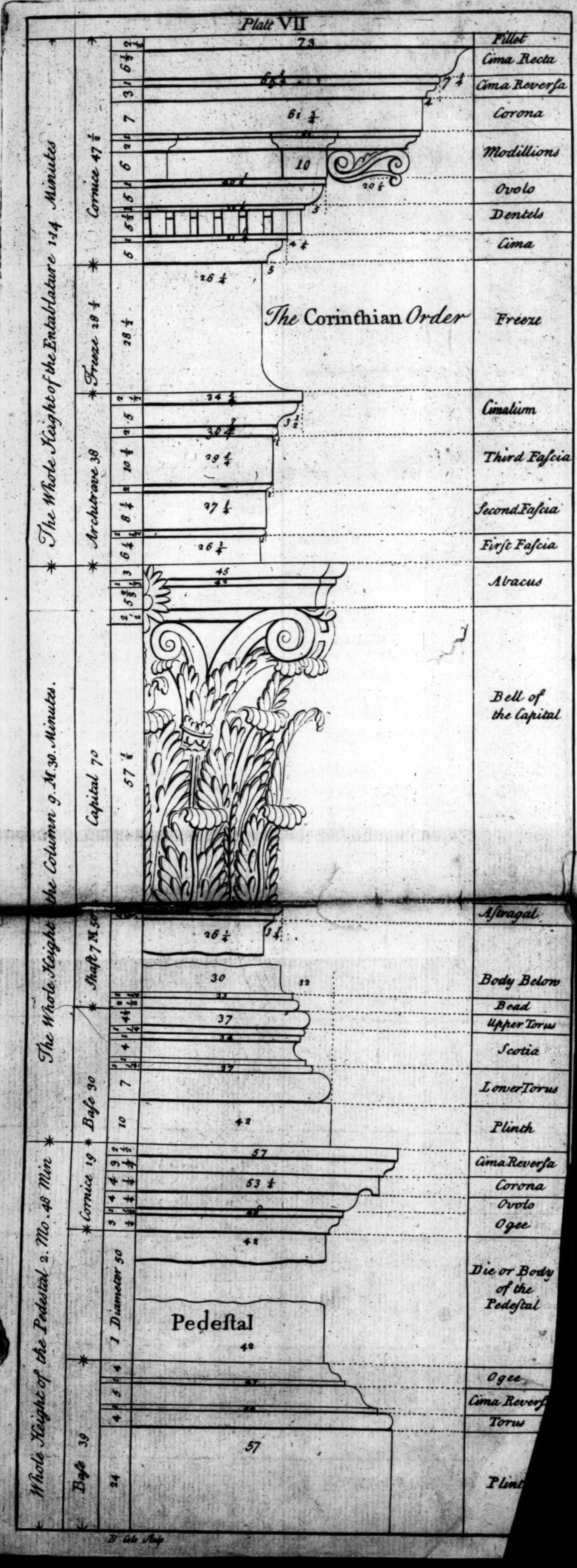


Plate VII
The Whole Height of the Entablature 114 Minutes
The Whole Height of the Column 9. M. 30. Minutes.
Whole Height of the Pedestal 2. Mo. 48 Min
Cornice 47 ½
Freeze 28 ½
Architrave 38
Capital 70
Shaft 7 M. 50
Base 30
Cornice 19
1 Diameter 50
Base 39
2 ½
6 ½
1
3
7
2
6
1
5
5 ½
1
5
28 ½
2 ½
5
2
10 ½
2
8 ½
1
6 ½
3
5 ⅔
2
57 ½
7
10
4
4
7
3
4
5
4
24
73
65 ¾
7 ¼
61 ½
4
10
20 ½
3
4 ½
5
26 ½
34 ½
3 ½
30 ½
29 ½
27 ½
26 ½
45
26 ½
3 ½
30
12
37
37
42
57
53 ½
42
42
57
The Corinthian Order
Pedestal
Fillet
Cima Recta
Cima Reverfa
Corona
Modillions
Ovolo
Dentels
Cima
Freeze
Cimalium
Third Fafcia
Second Fafcia
First Fafcia
Abacus
Bell of the Capital
Aftragal
Body Below
Bead
Upper Torus
Scotia
Lower Torus
Plinth
Cima Reverfa
Corona
Ovolo
Ogee
Die or Body of the Pedeftal
Ogee
Cima Reverf
Torus
Plint
B Cole Sculp

CHAP. IV.

Of the Corinthian Order.

PLATE VII.

THIS Order was firſt deſigned by an Architect of *Athens*, and executed at *Corinth*; from whence it had its Original and Name of *Corinthian* Order.

This Column, including Baſe and Capital, is 9 Diameters and a half high, and diminiſhes one eighth Part of its Diameter: Its Entablature is one fifth of the height of the Column.

The Height of the Capital is ſeventy Minutes, of which the Abacus muſt be a ſeventh Part; and the remaining Part being divided into three equal Parts, the two lowermoſt, gives the Height of the firſt and ſecond Tour of Leaves; and the third, or uppermoſt Part, being divided into two equal Parts, the lower Part of the two ſhall be for the Caulicoli, or Scrolls, and the upper the Extremes of the Voluta's. The Height of the Pedeſtal is 2 Modules 48 Minutes. The principal Parts are as follow, *viz.*

		By my Method.						By Mr. *Gibbs*'s Method.						Builders Repoſitory.					
		Mod.	*Min.*	*Min.*		*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*		*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*		*Mod.*	*Min.*
Entablature	Cornice	0	47½	114	or	1	54	0	48	120	or	2	0	0	47½	105	or	1	54
	Frize	0	28½					0	36					0	28½				
	Architrave	0	38					0	36					0	38				
Column	Capital	1	10	570	or	9	30	1	10	600	or	10	0	1	10	570	or	9	30
	Shaft	7	50					8	20					7	50				
	Baſe	0	30					0	30					0	30				
				684	or	11	24												
Pedeſtal	Cornice	0	19	168	or	2	48	0	22½	180	or	3	0	0	24½	171	or	2	51
	Body or Die	1	50					1	37½					1	37½				
	Baſe & Plinth	0	39					1	00					0	49				
				852	or	14	12	Total		900	or	15	0			855	or	14	15

So that the whole Height of this Column, excluſive of its Pedeſtal, by my Method, is 684 Minutes, or 11 Modules, 24 Minutes; with its Pedeſtal 852 Minutes, or 14 Modules 12 Minutes.

In this Order Mr. *Gibbs* makes a greater Variation than in any other, in all the principal Parts of the *Pedeſtal*, *Column*, and *Entablature*, as will appear by comparing the Schemes and ſeeing Plate A.

CHAP. V.

Of the Compoſite *Order.*

PLATE VIII.

THE *Compoſite* Order is ſo called, becauſe it is compoſed of the *Ionic* and *Corinthian* Orders, and not a compleat Order of itſelf. 'Tis of a *Roman* Extraction, and by many is called the *Roman* Order, and by ſome the *Italian* Order. This Order is more ſlender than the *Corinthian*, and may be made like it in all Parts, except in the Capital.

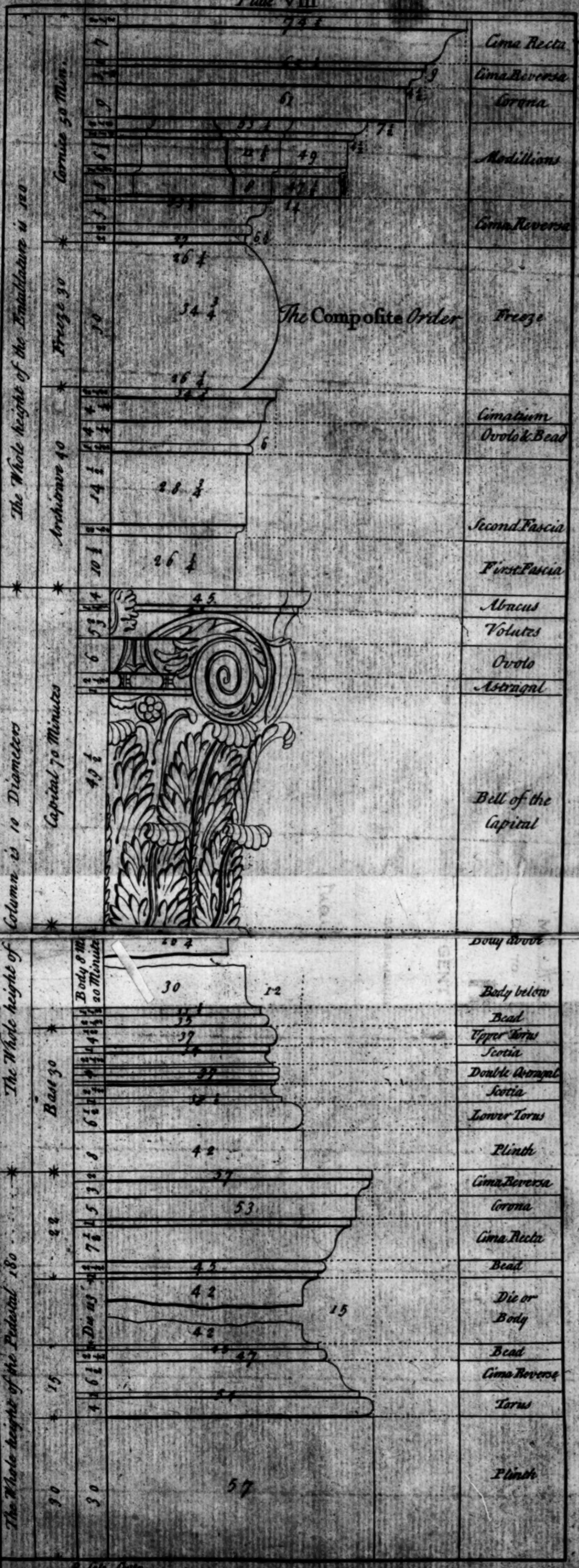
This Column, including its Baſe and Capital, is ten Diameters high, it diminiſhes one Eighth of its Diameter, and the Entablature is one fifth of the Height of the Column. The Pedeſtal is 3 Modules high.

The principal Parts thereof are as follow, *viz.*

		By my Method.					By Mr. *Gibbs.*					Builders Repoſitory.				
		Mod.	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*	*Mod.*	*Min.*	*Min.*	*Mod.*	*Min.*
Entablature	Cornice	0	50	120 or	2	0	0	48	120 or	2	0	0	50	120 or	2	0
	Frize	0	30				0	36				0	30			
	Architrave	0	40				0	36				0	40			
Column	Capital	1	10	600 or	10	0	1	10	600 or	10	0	1	10	600 or	10	0
	Shaft	8	20				8	20				8	20			
	Baſe	0	30				0	30				0	30			
				720 or	12	0										
Pedeſtal	Cornice	0	22	180 or	3	0	0	22½	180 or	3	0	0	25½	180 or	3	0
	Body or Die	1	53				1	37½				1	43			
	Baſe and Plinth	0	45				1	00				0	51½			
				900 or	15	0	——		900 or	15	0			900 or	15	0

So

Plate VIII



B. Cole Sculp

30 JUN 58

So that the whole Height of this Column, excluſive of its Pedeſtal, by my Method, is 720 Minutes, or 12 Modules; with its Pedeſtal 900 Minutes or 15 Modules.

In this Order Mr. *Gibbs* makes not the leaſt Variation in his principal Parts, from the *Corinthian Order*, ſo that his is only a Repetition of the laſt; but in the *Builder's Repoſitory*, there is a Variation from the *Corinthian*, though not much from Mr. *Gibbs.* See Plate A.

PLATE IX. Is all the five Orders in general collected together from the foregoing Proportions, and may be meaſured by the Scale of Minutes there laid down.

And Plate A, ſhews the Variations from theſe Proportions by two other Authors as mentioned in the foregoing Chapters.

CHAP. VI.

Of the INTERCOLUMNIATION *of the five* ORDERS *of Columns in* ARCHITECTURE.

PLATE B.

1. *Of the* TUSCAN *Order*.

THE Intercolumniation of this Order, that is, the Diſtance that the Columns ſhould be placed from each other, is greater in this than in any of the other Orders, becauſe its Architrave is generally made of Wood, and therefore hath an Intercolumniation of 4 Diameters, or 4 Diameters 45 Minutes.

This Intercolumniation, *Vitruvius* calls *Aræoſtyles*, which is a compound *Greek* Word, ſignifying Columns thin ſet.

Note, The Intercolumniation of Columns, is always accounted from the central Line of the Column.

When you are to introduce Arches between the Columns, the Intercolumniation may be 4 Diameters and a half, or 5 Diameters 15 Minutes: The Aperture, or Opening in Breadth, muſt be 3 Diameters 10 Minutes, and 4 Diameters in Height to the lower Part of the Impoſt.

2. *Of the* DORIC *Order.*

THE Intercolumniation of this Order is always regulated by the Number of Trigliphs in the Frize, *viz.* when 1, 2, 3, 4, or 5 Trigliphs are placed between thoſe over the Columns, the Intercolumniation muſt be for

	D.	*M.*
1 Trigliph	2	30
2 Trigliphs	3	45
3 Trigliphs	5	0

Theſe are the ſeveral Intercolumniations when the Frize is inriched with its Trigliphs; but when they are not regarded, the Intercolumniation is three Diameters preciſely.

When the *Doric* Arch is to be made, the Intercolumniation muſt be greater than either of the preceding, and muſt contain either 4 or 5 Trigliphs between thoſe over the Columns; and for ſuch an Intercolumniation there muſt be for

	D.	*M.*
4 Trigliphs	6	15
5 Trigliphs	7	30

3. *Of the* IONIC *Order.*

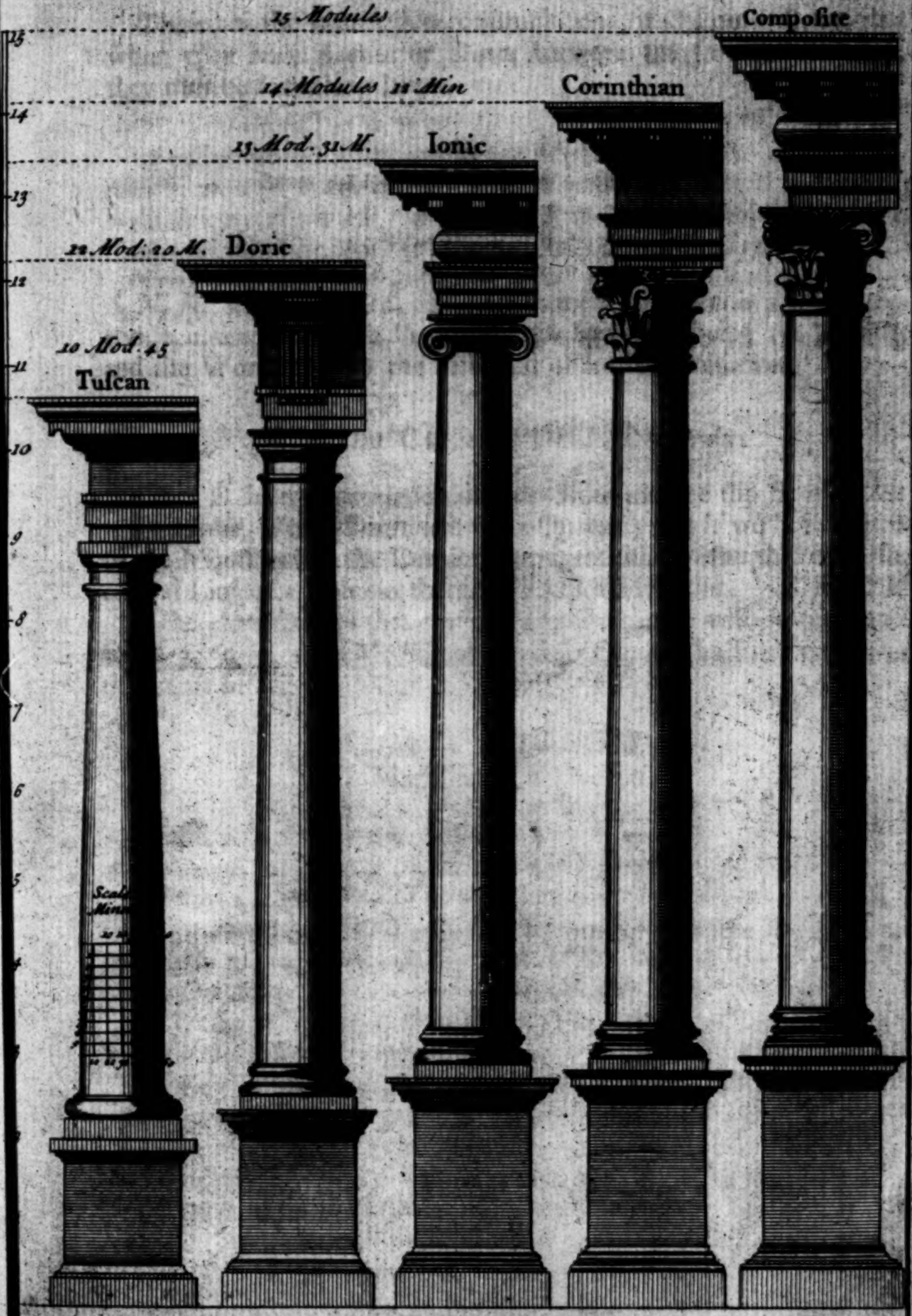
THE Intercolumniation of this Order depends upon the Number of Modillions between Column and Column; for, ſince that over every central Line of a Column, there is placed a Modillion as the Trigliphs of the *Doric* Order are. It therefore follows that every Intercolumniation will be odd, and when 3, 5, 7, or 9 Modillions are placed between thoſe over the Column, the Intercolumniation muſt be for

	D.	*M.*
3 Modillions	2	8
5 - - - - -	3	12
7 - - - - -	4	16
9 - - - - -	5	20

Theſe

The Five Orders *in General*

Plate IX



Hoppus Delin.

B. Cole Sculp.

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Theſe are the various Intercolumniations of Columns alone, but when they have Arches or Doors between the Intercolumniation, they may be ſomething larger, *viz.*

		D.	*M.*
11	Modillions	6	24
13	- - - -	7	28
15	- - - -	8	32

N. B. That the moſt common Intercolumniation is 2 Diameters and one fourth, which *Vitruvius* calls *Euſtiles*, being (as he ſaith, and the Word implies) the beſt kind of Intercolumniation.

4. *Of the* CORINTHIAN *Order.*

THE Intercolumniation of this Order may be the ſame as the *Ionic*, *viz.* 2 Diameters and a Quarter; but if we have regard to the Modillions in the Cornice, we muſt alſo obſerve that over the central Line of a Column there be placed a Modillion.

It therefore follows that every Intercolumniation will be odd, and when 3, 5, 7, or 9 Modillions are introduced, the Intercolumniation muſt be for

		D.	*M.*
3	Modillions	2	30
5	- - - - -	3	45
7	- - - - -	5	0
9	- - - - -	6	15

The Intercolumniation may yet be greater; where the Arch of this Order is to come between; as

		D.	*M.*
11	Modillions	7	30
13	- - - - -	8	45

5. *Of the* COMPOSITE *Order.*

THE Intercolumniation of this Order is 1 Diameter 30 Minutes, when the Columns are placed in Pairs; but when ſingle may be larger, and when an Arch is compriſed between them may be extended even to 6 or 8 Diameters. But the Intercolumniation is alſo regulated by the Number of Modillions contained therein, as, firſt, Columns placed in Pairs, having two Modillions between, are (as above) 1 Diam. 30 Min. but when they conſiſt either of 8, 11, or 16 Modillions, then the Intercolumniation muſt be for

	D.	*M.*
8 Modillions	4	21
11 - - - - -	5	48
16 - - - - -	8	13

For the Impoſts of Arches for this, and all the other Orders, See *Plate* XIV.

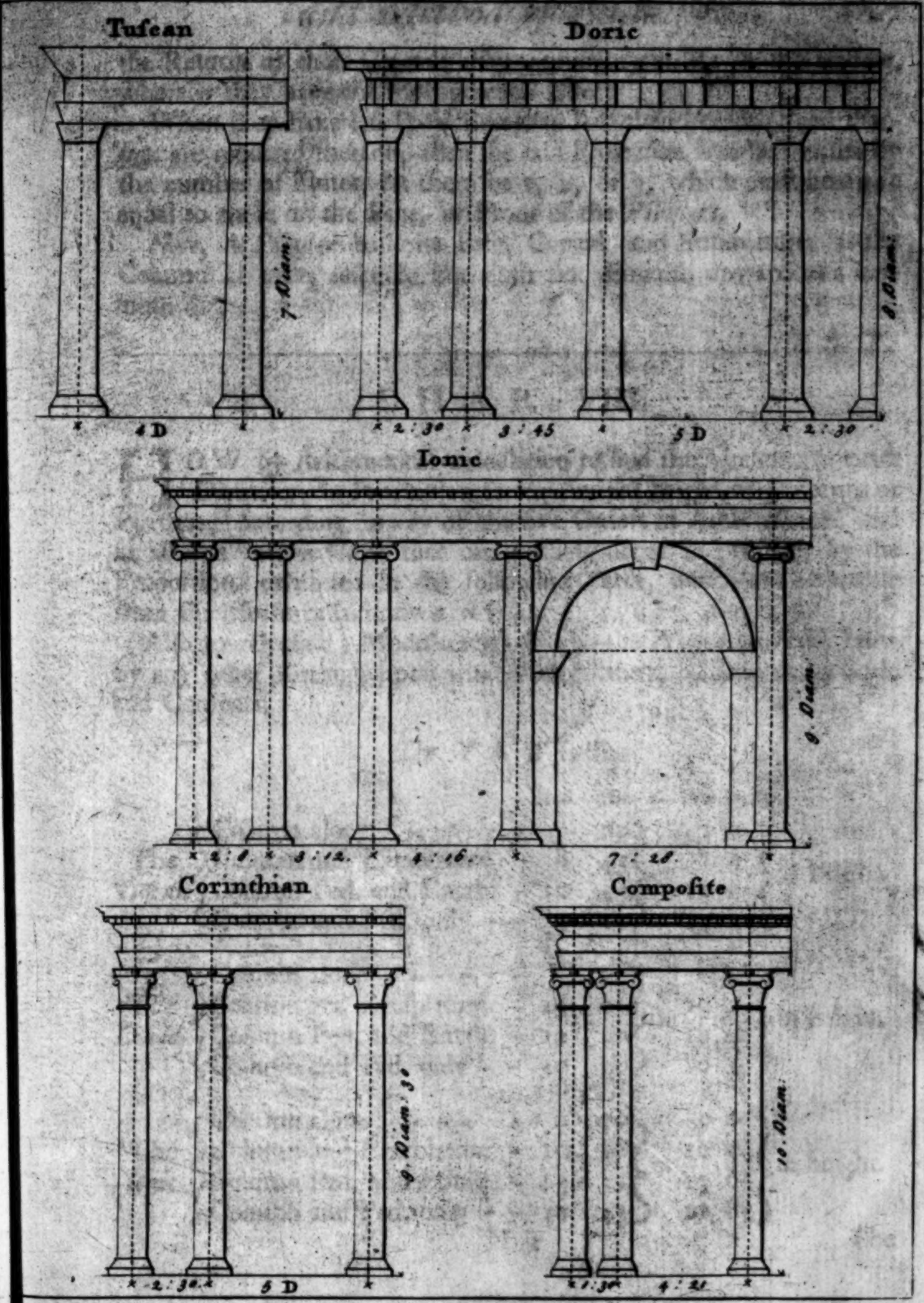
C H A P. VII.

Of PILASTERS.

PILASTERS are a kind of ſquare Columns, which appear to be in part ſunk within the Wall againſt which they ſtand, and that Part of them which appears before the Face of the Wall, is called their Projecture; which Projections are to be conſidered with reſpect to the Order they are of: As firſt, The *Tuſcan* and *Doric* need be no more than $\frac{1}{5}$ or $\frac{1}{6}$ of their Diameters, excepting when they are to receive Impoſts againſt them, and then they muſt project $\frac{1}{4}$ of their Diameter. The Projection of the Impoſts muſt not project more than the *Pilaſters.*

Secondly, *Pilaſters* of the *Ionic*, *Corinthian*, and *Compoſite* Orders, ſhould have a Projection equal to half their Diameters, that the

Plate B.


Tuſcan
Doric
7 Diam:
8 Diam:
4 D
2 : 30
3 : 45
5 D
2 : 30
Ionic
9 Diam:
2 : 8.
3 : 12.
4 : 16.
7 : 28.
Corinthian
Compoſite
9 Diam: 30
10 Diam:
2 : 30
5 D
1 : 30
4 : 21

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the Returns of their Capitals may terminate exactly in the middle, whereby they have the moſt graceful Effect.

When they have leſs Projection than half their Breadth, and *Flutings* are required thereon, then the ſaid Projection is to be limited by the number of Flutes, let them be 1, 2, or 3, which muſt be made equal to thoſe on the Face, or Front of the *Pilaſters*.

Note, A *Pilaſter* hath its Baſe, Capital, and Entablature, as the Column in every reſpect, but doth not diminiſh upward as a Column doth.

CHAP. VIII.

HOW by Arithmetical Calculation to find the Module, or exact Diameter, in Proportion to any limited height of Columns or Pilaſters; according to any of the five Orders in Architecture; and in all the various Caſes that can poſſibly occur in Practice, by the Proportions exhibited in the following Table, which are deducible from the Meaſures laid down in *Plate* 4, 5, 6, 7, and 8.

Alſo to calculate a Module according to the Proportions laid down by any other Author, upon what Order ſoever. Likewiſe by Scale and Compaſs.

The TABLE.

		Mod.	Min.		Feet	Inches	
The *Tuſcan*	Column alone - - - - - -	7	00	or	7	0	in height.
	Column and Entablature -	8	45		8	9	
	Column Ped. and Entab. -	10	45		10	9	
	Column and Ped. only - -	9	00		9	0	
The *Doric*	Column alone - - - - - -	8	00	or	8	0	in height.
	Column and Entablature -	10	00		10	0	
	Column Ped. and Entab. -	12	20		12	4	
	Column and Ped. only - -	10	20		10	4	
The *Ionic*	Column alone - - - - - -	9	00	or	9	0	in height.
	Column and Entablature -	10	48		10	$9\frac{5}{6}$	
	Column Ped. and Entab. -	13	31		13	$6\frac{1}{3}$	
	Column and Ped. only - -	11	43		11	$8\frac{5}{9}$	

The

		Mod.	Min.		Feet	Inches	
The *Corinthian*	Column alone - - - - -	9	30	or	9	6	in height.
	Column and Entablature	11	24		11	$4\frac{4}{5}$	
	Column Ped. and Entab.	14	12		14	$2\frac{2}{5}$	
	Column and Ped. only -	12	18		12	$3\frac{3}{5}$	
The *Compoſite*	Column alone - - - - -	10	00	or	10	0	in height.
	Column and Entablature	12	00		12	0	
	Column Ped. and Entab.	15	00		15	0	
	Column and Ped. only -	13	00		13	0	

The Uſe of the Table, in finding the exact Module, or Diameter, in Proportion to any Height of Columns or Pilaſters.

EXAMPLE.

Suppoſe you want to know the Module, or Diameter, for erecting the *Doric* Column and Entablature, to a limited Height of 15 Feet 3 Inches.

Seek in the Table, the *Doric* Column and Entablature, and right againſt it you will find 10 Modules, or 10 Feet in Height; which is equal to 10 Modules, accounting every Module to contain one Foot.

Now to find a Module in proportion to the Height propoſed, *viz.* 15 Feet 3 Inches. Say, by the *Rule of three Direct*, If 10 Feet *(Note*, you may always reject the fractional Part of an Inch in the Height, if any) in Height require a Module of 12 Inches, what will 15 Feet 3 Inches require?

Now as the firſt and third Numbers do each conſiſt of two Denominations, *viz.* Feet and Inches, you muſt therefore always obſerve, Firſt, to reduce each Number into the loweſt Denomination, that is, Inches: And obſerve alſo, that the firſt and third Numbers are both of one Denomination; that is, both Feet, or both Inches. Which is done by multiplying the Feet by 12, and add in the Inches as followeth.

```
   Feet Inches Feet Inches                Inches Inches Inches
If 10 — 12 — 15  3.                If 120 — 12 — 183
   12         12                                    12
   ——         ——                                   ———
   20         33                                   366
  10         15                                   183
1ſt. No. 120 Inch. 183    3d. No. in Inches 120)2196(18 Inch.
                                                120
                                                ———
                                                 996
                                                 960
                                                 ———
                                                  36 Rem.
                                                  16 Multip.
                                                 ———
                                                 216
                                                 36
                                                 ———
                                            120)576(4
                                                480
                                                ———
                                                 96
```

Note, You muſt always multiply the Remainder by 16, and divide as before, and the Quotient will be ſo many 16ths of an Inch; as you ſee in this Example.

From the foregoing Operation it appears, that to erect a *Doric* Column with its Entablature, to a limited Height of 15 Feet 3 Inches, it will require a Module, or Diameter, of 18 Inches and $\frac{4}{16}$ of an Inch in proportion thereunto.

The ſame Rule is to be obſerved in finding a Module to any of the other Orders; in any of the Caſes, or to any Height whatſoever.

Note, Always obſerve to make uſe of the Feet and Inches, ſet down in the Table againſt the Caſe you require the Module to be calculated to, for the firſt Number in the Operation; and 12 Inches for the ſecond; becauſe 12 Inches is a proportionable Module to thoſe Heights in the Table: And the third Number muſt be the Height that you require a Module in Proportion to.

To calculate a Module according to the Proportions laid down by any Author, and upon what Order ſoever.

To calculate a Module in true Proportion according to any other Author, you muſt firſt make a Module, or Scale, divided into 60 equal Parts called Minutes; and the ſame Length again divide right under the former, into 12 equal Parts, which you muſt call Inches; and each of thoſe Inches you muſt again ſub-divide into four equal Parts, to repreſent Quarters of Inches: See *Plate* X. This Scale ſo divided will ſhew by Inſpection, how many Inches are contained in any number of Minutes; which is to be made uſe of in the following Manner.

EXAMPLE.

Suppoſe you would find a Module for erecting a *Doric* Column with its Pedeſtal, and Entablature: according to the Meaſures laid down by *Perrault*, which contains 12 Modules 19 Minutes. You muſt account the 12 Modules 12 Feet, and the 19 Minutes, you muſt look for in the Scale above-mentioned in *Plate* X. and you will find that 19 Minutes contains 3 Inches and ¼, which makes the whole Height to contain 12 Feet 3 Inches ¼, Rejecting the ¼, ſay, if 12 Feet 3 Inches in height, require a Module of 12 Inches, what will any other Height require? The ſame of any other Author, in any of the Caſes before mentioned, upon any Order.

CHAP.

CHAP. IX.

A Deſcription and Uſe of a new invented Inſpectional Plane-Scale, for finding the exact Diameter, in proportion to any limited Height, of Columns and Pilaſters.

PLATE X.

IN the upper Part there is a Scale of 26 Feet, and at the beginning thereof one of thoſe Feet or Diſtances, are divided into 12 equal Parts, called Inches. The 26 Feet are each divided into 4 equal Parts, and every one of thoſe Diviſions repreſent Quarters of Feet.

The Scale for finding the Diameter to any limited Height, is the Angles ABC, ABD, ABE, ABF, and ABG.

The Perpendiculars, that croſs the Angles, ſhew which Out-lines repreſent the *Tuſcan*, *Doric*, *Ionic*, *Corinthian* and *Compoſite* Orders; and the Diviſions on thoſe Perpendiculars marked R L K, ſhew how to find the Diameter for erecting a Column alone; the Column and its Entablature; the Column, Entablature, and Pedeſtal; or the Column and Pedeſtal only: And which of thoſe Diviſions repreſents each of theſe in particular, is ſufficiently explained in the *Plate*.

EXAMPLE I.

Suppoſe you would know the Diameter for erecting the *Doric* Column with its Entablature, to a limited Height of 18 Feet 7 Inches and $\frac{1}{2}$.

Apply a Square to one Side of the Scale, as ſuppoſe the Side MN; move the Square backward and forward until the Side thereof is right over 18 Feet 7 Inches and $\frac{1}{2}$; then from the Line AB, to the Line ID (which is the Line for the *Doric* Order) draw the Line *a e*. Secondly, Take a Ruler, and lay from the Point A, over the firſt Diviſion on the *Doric* perpendicular Line, as at R, and make a Mark by the Side of the Ruler, juſt over the Perpendicular *a e*, as at *f*. Then is *e f* a proportional Diameter to the limited Height as required. If you take the Diſtance *e f* between your Compaſſes, and apply them to the beginning of the upper Scale of Feet and Inches, it will ſhew you the Diameter in Feet and Inches, which in this Example is 1 Foot 10 Inches and one third.

EXAMPLE II.

Suppoſe you would find the Diameter for delineating on Paper, *&c.* a Column or Pilaſter to any height your Paper will admit of, not at all regarding how many Feet and Inches is repreſented. In ſuch a caſe, take the Scale, and lay that Side that hath the Feet, and Inches to the Paper whereon you intend to draw, laying the Perpendicular A Q exactly over where you intend the bottom of your Draught, and at your intended Height, make a Mark on the Side of the Scale, as at *o*; then for finding the Diameter, draw a Perpendicular (as before directed) from the Point *o*, and you have your Deſire.

Note, The Reaſon that I did not make uſe of any other height in this Example than in the former, was only to avoid Confuſion.

Note, The ſame Method is to be uſed in finding the Diameter to any of the other Orders, as in the foregoing Examples.

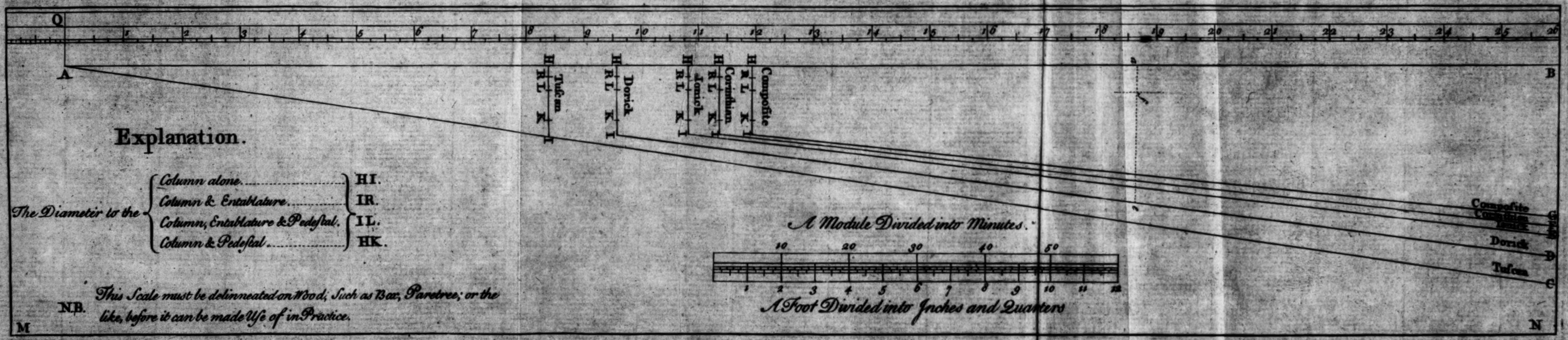
CHAP. X.

A Deſcription of my New invented Inſpectional Plane-Scale, for reducing Modules and Minutes to Feet and Inches.

PLATE XI.

THE beſt Way to make uſe of this Scale, is to delineate it upon Wood, or to paſte it on a piece of thin Board plained very ſmooth, and then ſquared, and cut to the exact form and bigneſs of the Out-lines thereof, as F G O P E. When you paſte it on the Board, be careful that there be no Rumple, and that you do not

Plate X.



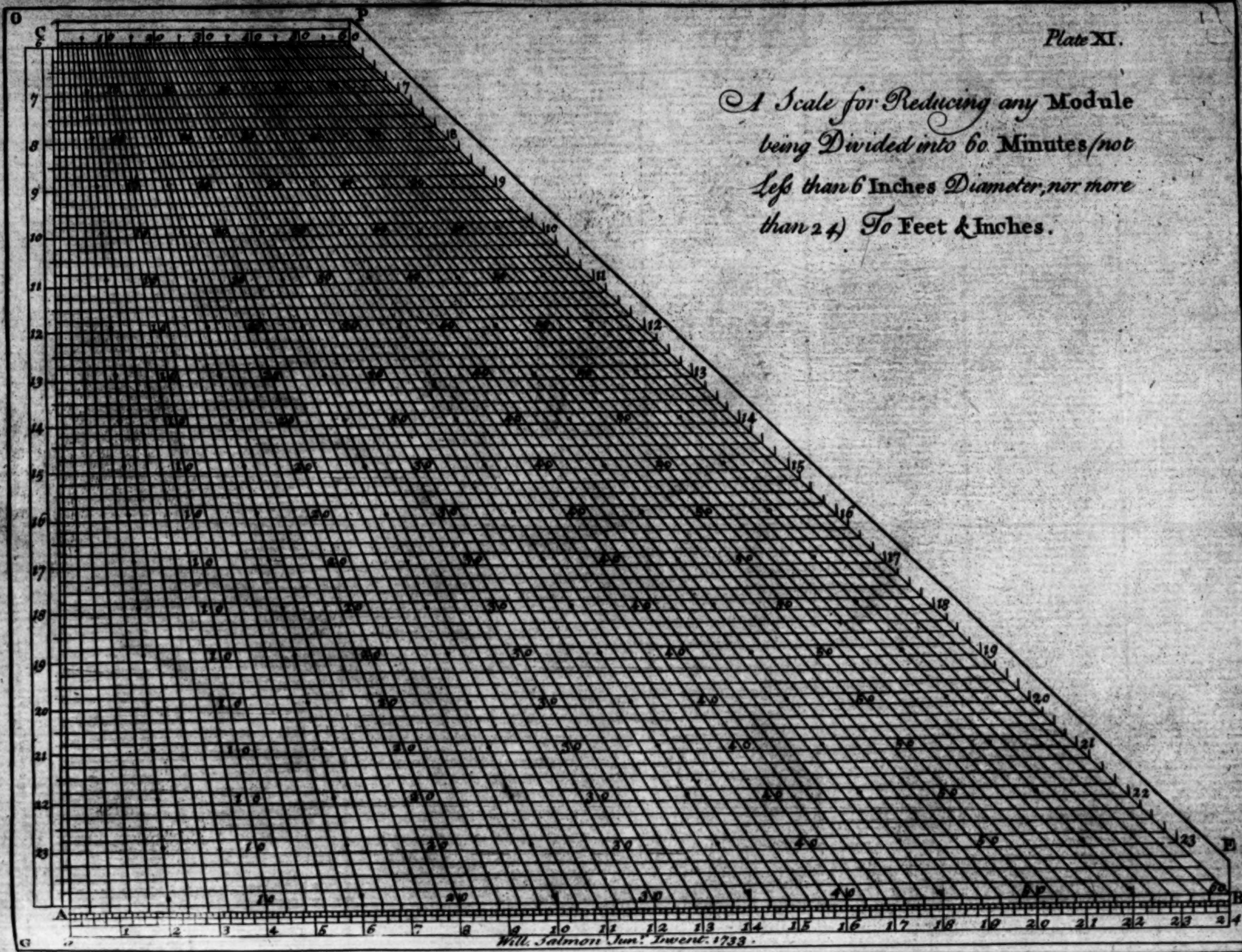
Explanation.

The Diameter to the
- Column alone.......................HI.
- Column & Entablature...............IR.
- Column, Entablature & Pedeſtal.....IL.
- Column & Pedeſtal..................HK.

N.B. *This Scale must be delinneated on Wood; Such as Box, Paretree; or the like, before it can be made Uſe of in Practice.*

Plate XI.

A Scale for Reducing any Module being Divided into 60 Minutes (not less than 6 Inches Diameter, nor more than 24) To Feet & Inches.



Will. Salmon Jun.r Invent. 1733.

not pull the Lines out of a Straight, and that the lower Edge of the Board F G be exactly ſquare with the perpendicular Line A C. Next you muſt have a Tee-ſquare, ſuch a one as is uſed with a Draught-board; let the Blade be in Length equal to the Height G O, and as thin as it can be well made.

EXPLANATION.

The lower Scale A B, is a Scale of 2 Feet, or 24 Inches, divided into half Inches, Quarters, and half Quarters; in the ſame manner as the common 2 Foot Rule; and is the Scale by which the Modules are reduced to Feet and Inches. The other Scales marked on the Sides with 6, 7, 8, 9, *&c.* to 24, are ſo many Modules divided into 60 equal Parts or Minutes, and are equal to 6, 7, and 8 Inches, *&c.* of the lower Scale A B: The Scales between thoſe marked with 6, 7, *&c.* repreſent Modules of $6\frac{1}{4}$ Inches, $6\frac{1}{2}$, $6\frac{3}{4}$; and the ſame is to be underſtood of any of the other Scales between 7 and 8, 9 and 10, *&c.*

PRACTICE.

Suppoſe the Module to be reduced to Inches, be 12 Inches, and it be required to know how many Inches there are in 45 Minutes. Firſt, ſeek for the Module of 12 Inches in the Side A C, lay the Square to the Side G F, and ſlide the Square about until the Side of the Blade lies right upon 45 Minutes of the 12 Inch Module, and caſt your Eye from thence to the lower Scale A B; and the ſame Edge of the Square that lies over 45 Minutes of the 12 Inch Module, will ſhew you how many Inches are contained therein, which in this Example is 9 Inches.

Again. Slide the Square to 15 Minutes, and you will find it is 3 Inches. The ſame Rule is to be obſerved in reducing any other Module; and therefore needs no more Examples.

Now ſince there is ſome Trouble in making the Tee-ſquare, I ſhall give you one Example how to perform the ſame with only a Pair of Compaſſes or Dividers.

EXAMPLE.

Let it be required to reduce a Module of 16 Inches to Inches, and to know the Height of the Frize in the *Doric* Order in

Inches; which is 45 Minutes in Height. *Practice.* Seek for the Module of 16 Inches, and placing one Foot of the Compaſſes on the Line *a e*, extend the other to 45 Minutes, and that Extent applied to the lower Scale A B, will ſhew that 45 Minutes, the Height of the Frize, is equal to 12 Inches, as was required.

CHAP. XI.

The Deſcription and Uſe of a Scale for dividing a Module into Minutes.

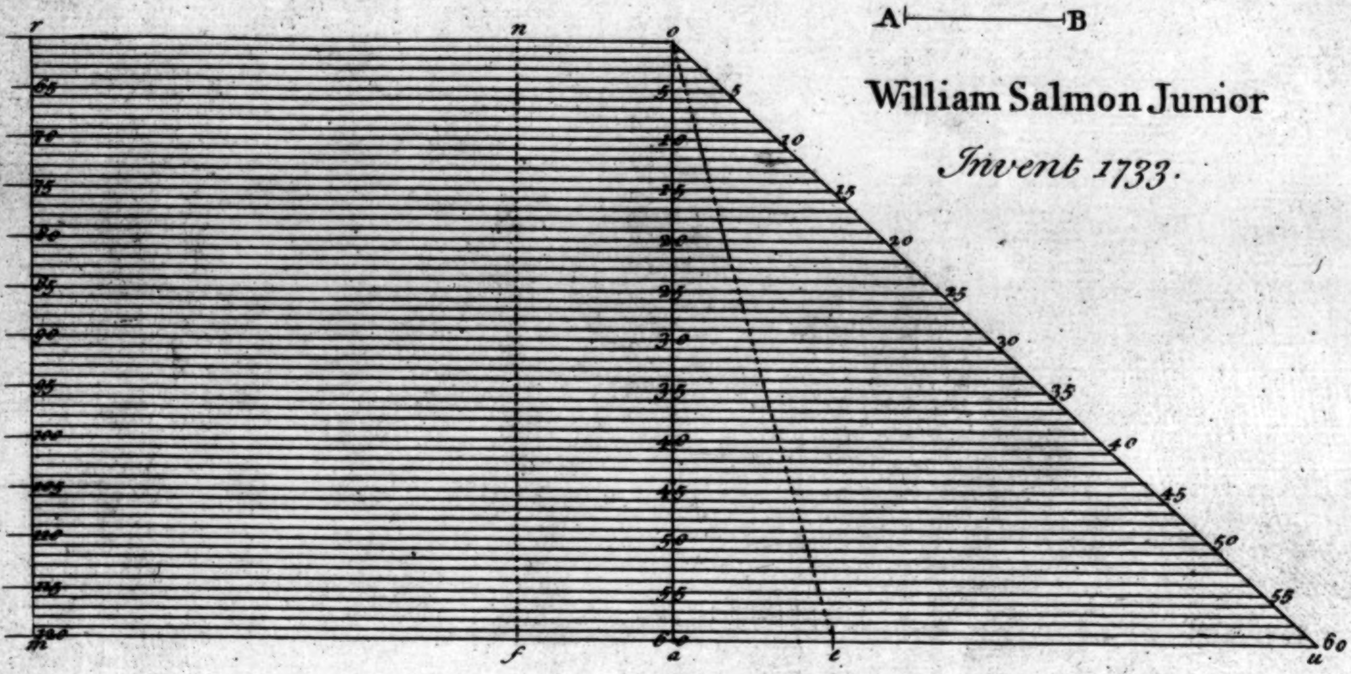
PLATE XII.

THE Line *a u* is divided into 60 equal Parts, by the 60 equidiſtant parallel Lines that cut the Diagonal Line *o u*; and is one of the biggeſt Modules that can be made uſe of in Drawing an entire Order upon a Sheet of the largeſt Paper, *a m* is equal to *a u*, ſo that *u m* is equal to two Modules or 120 Minutes. Now ſuppoſe it were required to take off from this Module 20 Minutes, ſeek for 20 on the perpendicular Line *a v*, and ſet therein one Foot of the Compaſſes, and on the ſame parallel Line extend the other Foot to 20 on the Diagonal *o u*, and the Diſtance then between your Compaſſes will be 20 Minutes of the Module *a u*, as required. Again, Let it be required to take off from thence 80 Minutes. Now, as I ſaid before, the Diſtance *a m* is equal to *a u*, therefore, of conſequence, all the parallel Lines contained between the Perpendiculars *a o*, and *m r*, are equal to *(a u,)* one Module or 60 Minutes; therefore to take off 80 Minutes, you muſt ſeek for 80 on the Perpendicular *m r*, and therein ſet one Foot of the Compaſſes, and extend the other on the ſame Parallel Line to 20 on the Diagonal Line *o u*, and you have your Deſire. 'Tis needleſs to give any more Examples in a Thing that at firſt Sight appears ſo plain.

I ſhall therefore in the next Place proceed to ſhew that by this Scale any other Module that is leſs than *a u*, may readily be divided into 60 Minutes; and from thence it will appear that this Scale is general and univerſally uſeful.

EXAMPLE.

A General Scale for the ready Dividing of Modules into Minutes.



William Salmon Junior

Invent 1733.

Plate XIII.

An Inspectional Table, shewing the exact Module or Diameter, for Erecting either Columns or Pilasters in true Proportion according to any of ye Five Orders in Architecture and to any Height required; in all the Variety of Cases that can possibly happen in Practice.

The height of the Column in Feet and Inches	Tuscan.				Doric.				Ionic.				Corinthian.				Composite.			
	Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.	Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.	Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.	Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.	Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.
F. I.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.	I. P.
5.0	8.9	6.13	5.9	6.10	7.8	6.0	4.14	5.13	6.10	5.9	4.7	5.2	6.5	5.3	4.4	4.14	6.0	5.0	4.0	4.10
3	9.0	7.3	5.13	7.0	7.14	6.4	5.1	6.1	7.0	5.13	4.10	5.6	6.10	5.7	4.8	5.2	6.4	5.4	4.3	4.13
6	9.6	7.9	6.2	7.5	8.4	6.9	5.5	6.6	7.5	6.2	4.14	5.10	6.15	5.12	4.11	5.6	6.9	5.8	4.6	5.1
9	9.13	7.14	6.6	7.10	8.10	6.14	5.9	6.11	7.10	6.6	5.1	5.14	7.4	6.0	4.14	5.10	6.14	5.12	4.9	5.5
6.0	10.4	8.4	6.11	8.0	9.0	7.3	5.13	6.15	8.0	6.11	5.5	6.3	7.9	6.4	5.1	5.14	7.3	6.0	4.13	5.9
3	10.11	8.9	6.15	8.5	9.6	7.8	6.1	7.4	8.5	6.15	5.8	6.7	7.14	6.9	5.5	6.2	7.8	6.4	5.0	5.12
6	11.2	8.15	7.4	8.10	9.12	7.12	6.5	7.9	8.10	7.4	5.12	6.11	8.3	6.13	5.8	6.6	7.12	6.8	5.3	6.0
9	11.9	9.4	7.9	9.0	10.2	8.1	6.9	7.13	9.0	7.9	6.0	6.15	8.8	7.1	5.11	6.10	8.1	6.12	5.6	6.3
7.0	12.0	9.9	7.13	9.5	10.8	8.6	6.13	8.2	9.5	7.13	6.3	7.3	8.13	7.5	5.15	6.14	8.6	7.0	5.9	6.7
3	12.6	9.15	8.2	9.10	10.14	8.11	7.0	8.7	9.10	8.2	6.7	7.7	9.2	7.10	6.2	7.1	8.11	7.4	5.13	6.11
6	12.13	10.5	8.6	10.0	11.4	9.0	7.3	8.11	10.0	8.6	6.10	7.11	9.7	7.14	6.6	7.5	9.0	7.8	6.0	6.14
9	13.4	10.10	8.11	10.5	11.10	9.4	7.8	9.0	10.5	8.11	6.14	7.15	9.12	8.2	6.9	7.9	9.4	7.12	6.3	7.2
8.0	13.11	10.15	8.15	10.10	12.0	9.9	7.12	9.4	10.10	8.15	7.1	8.3	10.1	8.6	6.12	7.13	9.9	8.0	6.6	7.6
3	14.2	11.4	9.3	11.0	12.6	9.14	8.0	9.9	11.0	9.3	7.5	8.7	10.6	8.11	7.0	8.1	9.14	8.4	6.9	7.10
6	14.9	11.10	9.8	11.5	12.12	10.3	8.4	9.13	11.5	9.8	7.8	8.11	10.11	8.15	7.3	8.5	10.3	8.8	6.13	7.13
9	15.0	12.0	9.12	11.10	13.2	10.8	8.8	10.2	11.10	9.12	7.12	8.15	11.0	9.3	7.7	8.9	10.8	8.12	7.0	8.1
9.0	15.6	12.5	10.0	12.0	13.8	10.12	8.12	10.7	12.0	10.0	8.0	9.4	11.5	9.7	7.10	8.13	10.13	9.0	7.3	8.5
3	15.13	12.10	10.4	12.5	13.14	11.1	9.0	10.11	12.5	10.4	8.3	9.8	11.10	9.11	7.13	9.1	11.1	9.4	7.6	8.9
6	16.4	13.0	10.9	12.10	14.4	11.6	9.4	11.0	12.10	10.9	8.7	9.12	12.0	9.15	8.0	9.5	11.6	9.8	7.9	8.12
9	16.11	13.6	10.13	13.0	14.10	11.11	9.8	11.5	13.0	10.13	8.10	10.0	12.5	10.3	8.3	9.9	11.11	9.12	7.13	9.0
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3	17.9	14.1	11.6	13.10	15.6	12.4	10.0	11.14	13.10	11.6	9.1	10.8	12.15	10.12	8.10	10.0	12.4	10.4	8.3	9.7
6	18.0	14.7	11.11	14.0	15.12	12.9	10.3	12.3	14.0	11.11	9.5	10.12	13.4	11.0	8.14	10.4	12.9	10.8	8.6	9.11
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11.0	18.13	15.1	12.4	14.10	16.8	13.3	10.11	12.12	14.10	12.4	9.12	11.5	13.14	11.9	9.5	10.12	13.3	11.0	8.13	10.2
3	19.4	15.7	12.9	15.0	16.14	13.8	10.15	13.0	15.0	12.9	10.0	11.9	14.3	11.13	9.8	11.0	13.8	11.4	9.0	10.6
6	19.11	15.13	12.14	15.5	17.4	13.12	11.3	13.5	15.5	12.13	10.3	11.13	14.8	12.1	9.11	11.4	13.12	11.8	9.3	10.10
9	20.2	16.2	13.2	15.10	17.10	14.1	11.7	13.10	15.10	13.2	10.7	12.1	14.13	12.5	9.15	11.8	14.1	11.12	9.6	10.13
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3	21.0	16.12	13.11	16.5	18.6	14.11	11.15	14.3	16.5	13.11	10.14	12.10	15.7	12.14	10.6	12.0	14.11	12.4	9.13	11.5
6	21.6	17.2	13.15	16.10	18.12	15.0	12.2	14.7	16.10	13.15	11.1	12.14	15.12	13.2	10.9	12.4	15.0	12.8	10.0	11.9
9	21.13	17.8	14.3	17.0	19.2	15.4	12.6	14.12	17.0	14.3	11.5	13.2	16.1	13.6	10.12	12.8	15.4	12.12	10.3	11.12
13.0	22.4	17.13	14.8	17.5	19.8	15.9	12.10	15.2	17.5	14.8	11.8	13.6	16.6	13.11	11.0	12.12	15.9	13.0	10.6	12.0
3	22.11	18.3	14.12	17.10	19.14	15.14	12.14	15.7	17.10	14.12	11.12	13.10	16.11	13.15	11.4	13.0	15.14	13.4	10.9	12.3
6	23.2	18.9	15.1	18.0	20.4	16.3	13.2	15.11	18.0	15.2	12.0	13.14	17.1	14.3	11.8	13.3	16.3	13.8	10.13	12.7
9	23.9	18.14	15.5	18.5	20.10	16.8	13.6	16.0	18.5	15.6	12.3	14.2	17.6	14.8	11.11	13.7	16.8	13.12	11.0	12.11
14.0	24.0	19.4	15.10	18.10	21.0	16.12	13.10	16.4	18.10	15.11	12.7	14.6	17.11	14.12	11.14	13.11	16.12	14.0	11.3	12.14
3	24.6	19.9	16.0	19.0	21.6	17.1	13.14	16.9	19.0	15.15	12.10	14.10	17.15	15.0	12.0	13.15	17.1	14.4	11.6	13.2
6	24.13	19.15	16.4	19.5	21.12	17.6	14.2	16.13	19.5	16.3	12.14	14.14	18.5	15.3	12.4	14.2	17.6	14.8	11.9	13.6
9	25.4	20.4	16.9	19.10	22.2	17.11	14.6	17.2	19.10	16.8	13.1	15.2	18.10	15.7	12.8	14.6	17.11	14.12	11.13	13.10
15.0	25.11	20.9	16.12	20.0	22.8	18.0	14.10	17.7	20.0	16.12	13.5	15.6	18.15	15.12	12.11	14.11	18.0	15.0	12.0	13.13
3	26.2	20.15	17.0	20.5	22.14	18.4	14.14	17.11	20.5	17.0	13.8	15.10	19.4	16.0	12.14	14.15	18.4	15.4	12.3	14.1
6	26.9	21.5	17.4	20.10	23.4	18.9	15.1	18.0	20.10	17.4	13.12	15.14	19.9	16.4	13.1	15.2	18.9	15.8	12.6	14.5
9	27.0	21.10	17.9	21.0	23.10	18.14	15.5	18.4	21.0	17.9	14.0	16.3	19.14	16.9	13.5	15.6	18.14	15.12	12.9	14.9
16.0	27.6	21.15	17.14	21.5	24.0	19.3	15.9	18.9	21.5	17.13	14.3	16.7	20.3	16.13	13.8	15.10	19.3	16.0	12.13	14.12
3	27.13	22.4	18.2	21.10	24.6	19.8	15.13	18.13	21.10	18.2	14.7	16.11	20.8	17.1	13.11	15.14	19.8	16.4	13.0	15.0
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3	29.9	23.10	19.3	23.0	25.14	20.11	16.12	20.0	23.0	19.3	15.5	17.12	21.12	18.1	14.9	16.14	20.11	17.4	13.13	15.14
6	30.0	24.0	19.8	23.5	26.4	21.0	17.0	20.5	23.5	19.8	15.8	18.0	22.1	18.5	14.13	17.2	21.0	17.8	14.0	16.2
9	30.6	24.6	19.12	23.10	26.10	21.4	17.4	20.10	23.10	19.12	15.12	18.4	22.6	18.10	15.0	17.6	21.4	17.12	14.3	16.6
18.0	30.13	24.11	20.0	24.0	27.0	21.9	17.8	20.14	24.0	20.0	16.0	18.8	22.11	18.14	15.4	17.10	21.9	18.0	14.6	16.10
3	31.4	25.1	20.4	24.5	27.6	21.14	17.12	21.3	24.5	20.4	16.3	18.12	23.1	19.2	15.8	17.13	21.14	18.4	14.9	16.13
6	31.11	25.7	20.9	24.10	27.12	22.3	18.0	21.7	24.10	20.9	16.7	19.0	23.6	19.6	15.11	18.1	22.3	18.8	14.13	17.1
9	32.2	25.12	20.13	25.0	28.2	22.8	18.3	21.12	25.0	20.13	16.10	19.4	23.11	19.10	15.14	18.5	22.8	18.12	15.0	17.5
19.0	32.9	26.1	21.3	25.5	28.8	22.12	18.7	22.0	25.5	21.2	16.14	19.8	24.0	19.15	16.1	18.9	22.12	19.0	15.3	17.9
3	33.0	26.7	21.8	25.10	28.14	23.1	18.11	22.5	25.10	21.6	17.1	19.12	24.5	20.3	16.5	18.13	23.1	19.4	15.6	17.12
6	33.6	26.13	21.12	26.0	29.4	23.6	18.15	22.10	26.0	21.11	17.5	20.0	24.10	20.7	16.8	19.1	23.6	19.8	15.9	18.0
9	33.13	27.2	22.0	26.5	29.10	23.11	19.3	22.14	26.5	21.15	17.8	20.5	24.15	20.12	16.11	19.5	23.11	19.12	15.13	18.3
20.0	34.4	27.7	22.4	26.10	30.0	24.0	19.7	23.3	26.10	22.3	17.12	20.9	25.4	21.0	16.15	19.9	24.0	20.0	16.0	18.7

Salmon Jun.r Invent.

Seale sculp

EXAMPLE.

Let the right Line A B be a Line given to be divided into 60 equal Parts or Minutes.

PRACTICE.

Take between your Compaſſes the Length of the given Line A B, and ſet one Foot of the Compaſſes in the Point *a*, and with that Diſtance make 2 Points on the Line *u m*, as at *e* and *f*; draw the perpendicular Line *f n*, and the Diagonal Line *o e*; then will the given Line A B be divided into 60 equal Parts by the Diagonal Line *o e*, as was required; and to make uſe of it is the ſame as is taught above, and needs no Repetition. It is beſt to draw the Lines *o e* and *n f*, &c. with a Blacklead Pencil, becauſe thoſe Lines are eaſily rubbed out when you have done making uſe of them, with a crumb of Bread.

CHAP. XII.

Deſcription and Uſe of the TABLE *for finding the Diameter, in Proportion to any Height of* Columns *or* Pilaſters, *throughout all the* Five Orders *in* ARCHITECTURE.

PLATE XIII.

THE firſt Column towards the Left-hand, is the Height of the Column or Pilaſter, in Feet, and Inches, from 5 to 20 Feet high in a gradual Aſcent of 3 Inches. On the top of the Table is writ the Names of the Five Orders, *viz. Tuſcan*, *Doric*, *Ionic*, *Corinthian*, and *Compoſite*, and ſhews how many Heads in the Table goes to each Order, which is 4 Heads to each Order; and right under *Tuſcan*, *Doric*, &c. is writ the Variety of Caſes that the Diameter is calculated to, *viz.* to the Column alone; the Column and Entablature; Column, Entablature, and Pedeſtal; and the Column and Pedeſtal only.

Theſe are all the Variety of Caſes that can poſſibly happen in Practice. In each Column there are two Rows of Figures; the firſt of which are Inches, and the other ſo many 16ths of an Inch.

EXAMPLE.

Let it be required to find the Diameter for erecting the *Doric* Column with its Entablature, to a limited Height of 8 Feet 6 Inches. Seek in the firſt Column for 8 Feet 6 Inches; alſo on the Top of the Table, under *Doric*, for Column and Entablature, and in the Angle of meeting you will find there ſet down 10, 3, which ſignifies 10 Inches and 3 Sixteenths of an Inch; which is the exact Diameter in Proportion to the limited Height required.

Proceed in the ſame Manner for any other Order in any Caſe whatever.

Note. That if you require the Diameter to any Height greater or leſs than is in the Table, proceed in this Manner. If the Height is greater than any in the Table, ſeek for a Diameter to half that Height; and, when found, double the Diameter, and the Product is the Diameter ſought.

Again; If the Height is leſs than any in the Table, ſeek for a Diameter, double the Height, and take half thereof for the Diameter ſought; and you have your Deſire.

CHAP. XIII.

PLATE XIV.

SHEWETH the Impoſts and Architrave to Arches of the *Tuſcan*, *Doric*, *Ionic*, *Corinthian*, and *Compoſite* Orders of Architecture.

Alſo the Method of deſcribing the ſeveral Sorts of Mouldings made uſe of in Architecture, the Manner of doing which are ſufficiently made appear by the Figures themſelves, and needs no other Explanation.

C H A P.

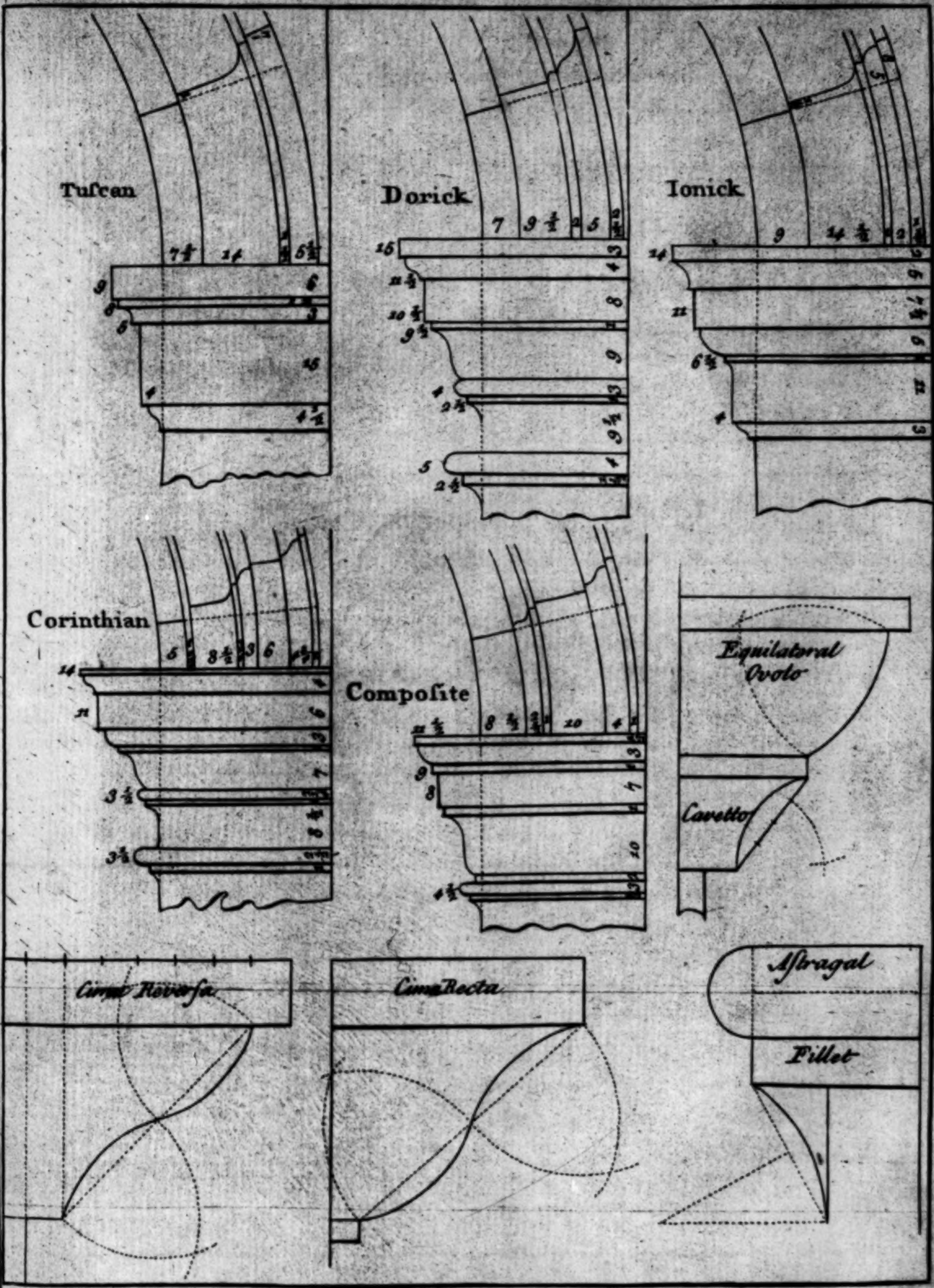

Tuſcan
7½
14
5½
9
6
6
3
5
15
4
4½
Dorick
7
9½
2
5
15
11½
10½
9½
8
9
3
4
2½
9½
5
2½
4
Ionick
9
14½
2
14
11
6½
4
6
11
3
Corinthian
5
8½
3
6
14
11
6
3
7
3½
8½
3½
Compoſite
11½
8½
20
4
9
8
3
7
10
4½
Equilatoral Ovolo
Cavetto
Cima Reverſa
Cima Recta
Aſtragal
Fillet

Plate XV.

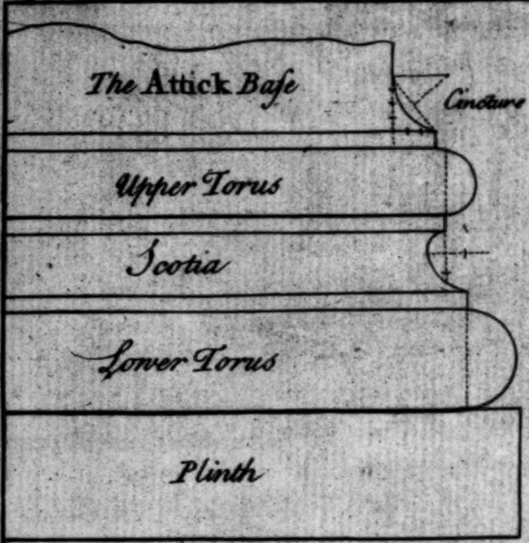
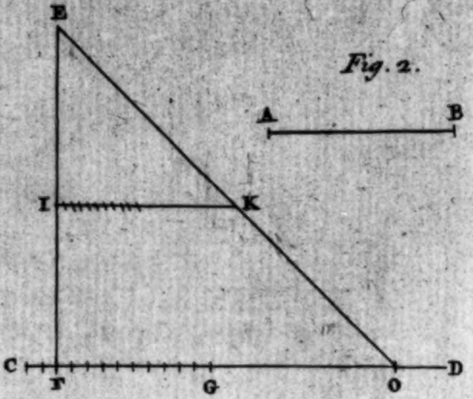
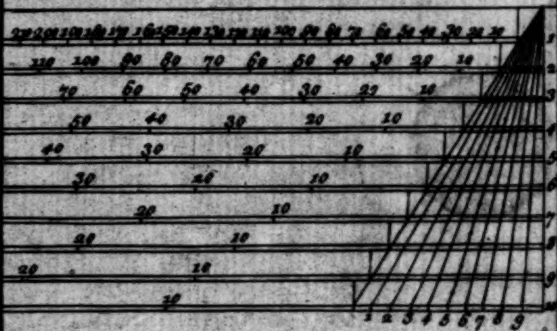


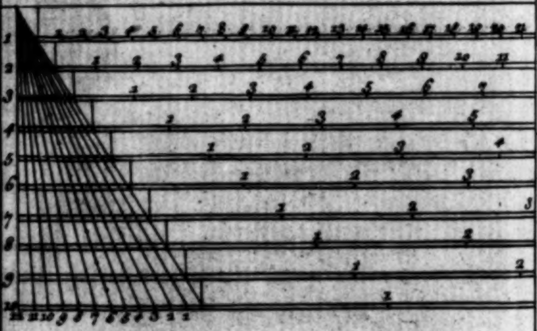
Fig. 2.



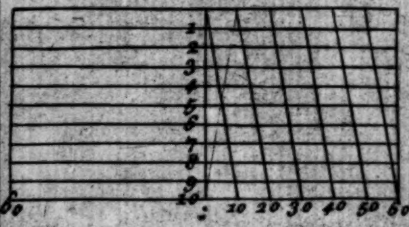
Scales of Feet



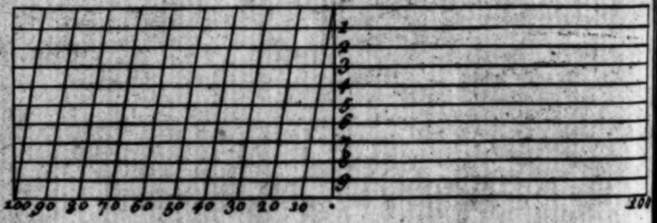
Scales of Feet and Inches —



A Scale of two Modules



A Scale of two Chains —



CHAP. XIV.

Of making divers Scales, &c.

PLATE XV.

HOW to divide a given Line into any Number of Feet and Inches.

Let it be required to divide the Line A B, *Fig.* 2, into one Foot 10 Inches.

OPERATION.

Draw a right Line at Pleaſure, as C D, and with any ſmall Opening of the Compaſſes, ſet thereon 12 equal Parts, as from C to G; take between your Compaſſes thoſe 12 Diviſions C G, and ſet it on from G to O; erect the Perpendicular F E on the 10th Diviſion from G, and equal in Length to F O, and draw the Diagonal Line E O: Take between your Compaſſes the Length of the given Line A B, and ſetting one Foot of the Compaſſes on the Point E, with the other make a Mark on the Perpendicular E F, as at I, draw the Line I K parallel to the Line C D, and it will be equal in Length to the given Line A B; and if you lay a Ruler from the Point E, and over each of the ten Diviſions from G to F, and making a Mark by the Side of the Rule, croſs the Line I K for each Diviſion, it will divide the given Line into one Foot 10 Inches, as required. And the like of any other.

The Scales of Feet; of Feet and Inches; the Scale of Modules; and Scale of Chains, are here laid down to ſhew the Way and Manner of making ſuch Scales which may be underſtood almoſt by Inſpection; but a careful Examination will render them very eaſy.

Theſe Sorts of Scales are the beſt, and moſt commodious of any that are required in Drawing.

CHAP. XV.

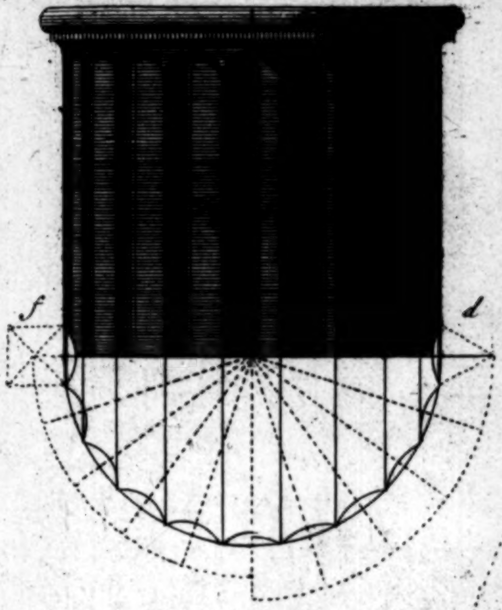
Of Flutes *and* Fillets *of* Columns *and* Pilaſters.

PLATE XVI.

1. OF *the* Doric *Order*.] The *Doric* Column is often fluted without Fillets, and hath twenty in Number; but a Pilaſter in this Order, as well as the *Ionic*, *Corinthian* and *Compoſite*, ought to have but ſeven Flutes and eight Fillets. The Proportion that the Fillets bear to the Flutes is one to three.

Fig. 1. Shews the manner of deſcribing and dividing the Flutes of ſuch Columns as are fluted without Fillets, and the Center for ſtriking the Flutes two different Ways, the one from the Corner of an equilateral Triangle as *d*, and the other from the Center of a Geometrical Square, as *f*, the whole Column being firſt divided into 20 equal Parts, as is ſhewn by the dotted Lines to the Center of the Semicircle.

2. *Of the* Ionic *Column*.] It is from this Order that the Flutings firſt were taken which were originally made to repreſent the Folds of Garments. This Order hath 24 in Number, and they are thus formed. Divide the whole Circumference into 24 equal Parts, as is ſhewn in *Fig.* 2. by the dotted Lines to the Center; and for the Breadth of Flutes and Fillets, you muſt divide one of thoſe as *a e* into 8 equal Parts, giving 6 of thoſe Parts to every Flute, and 2 to every Fillet, as plainly appears by the Perpendiculars raiſed from thence. They are in depth half their breadth, being a Semicircle formed on the Centers *a* and *e*. Sometimes they are made with an inverted Part of a Circle, as *b*, as high from the Baſe as to the Diminution of the Column which is $\frac{1}{3}$ of the Shaft; the Center is taken at the Depth of the Semicircle, as *c*, theſe are called Cabled-Flutings, the Rounds repreſenting a Rope or Cable laid into the Flute.



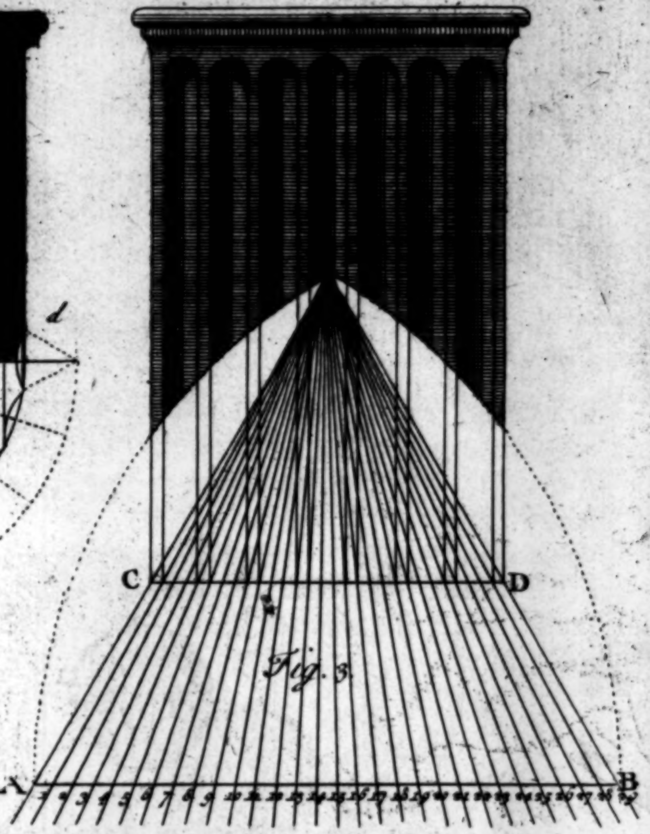
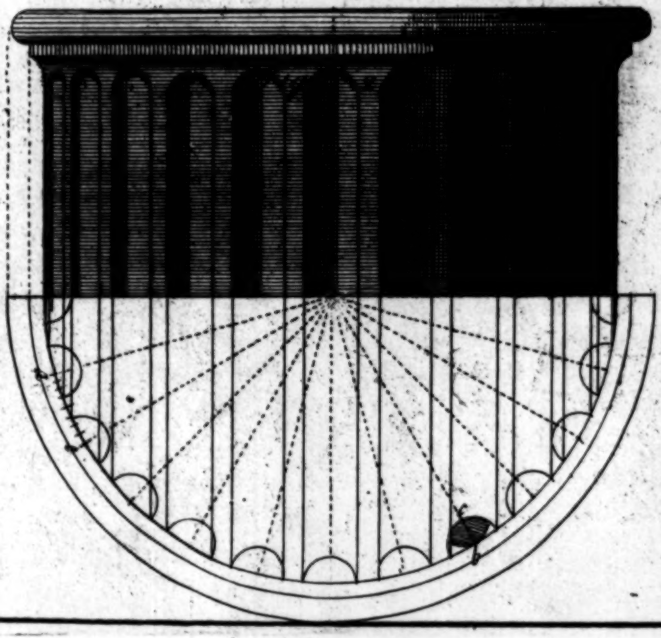


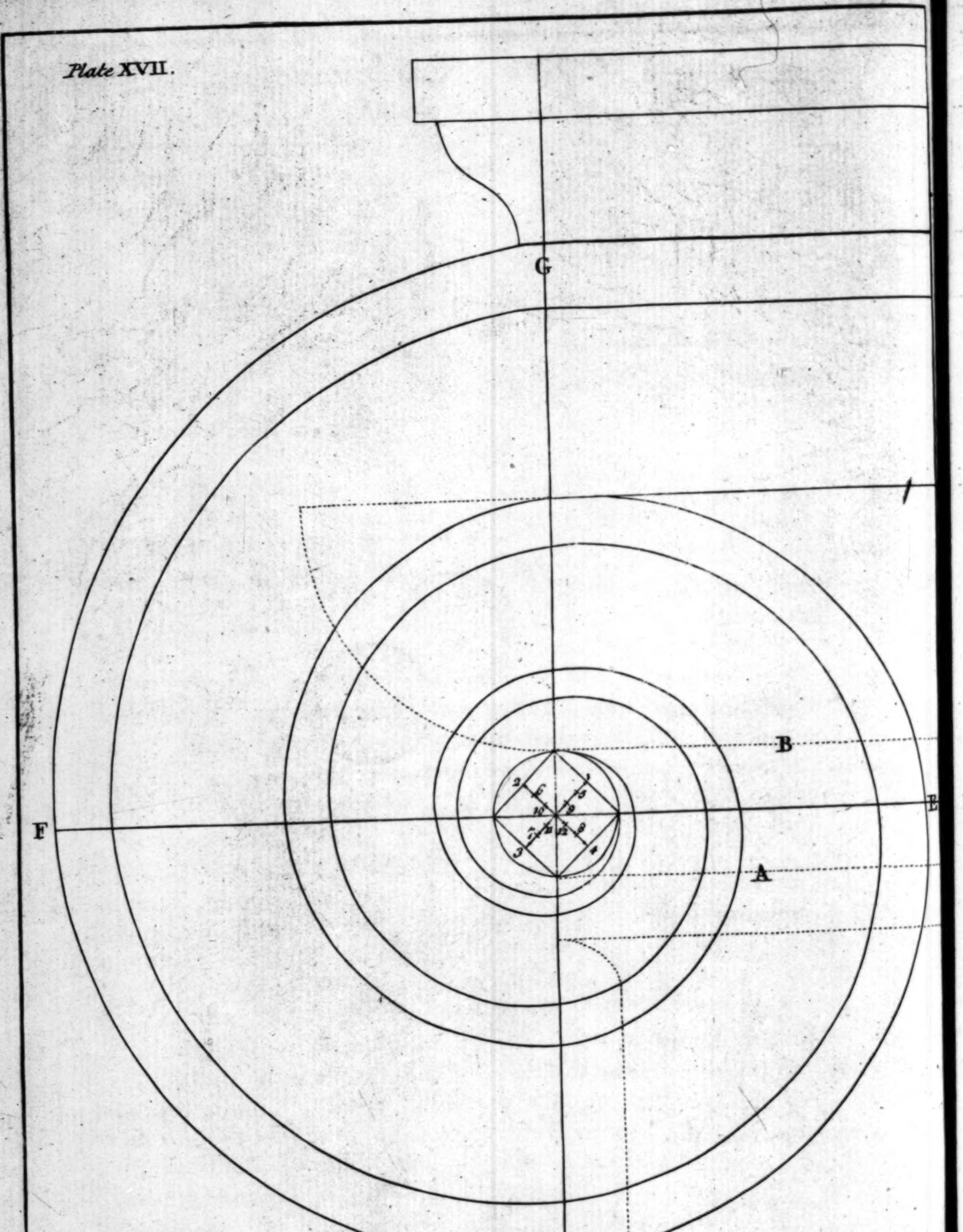
Fig. 3.

Plate XVI



B. Cole Sculp.

Plate XVII.



3. *Of the* Corinthian *Column.*] The Number of Flutes generally allowed to this Order, are alſo twenty Four, as in the foregoing, and ſometimes on account of the Compaſs and Station of the Column, the Flutes may be augmented to thirty in the Circumference. They are of a ſemicircular Form.

4. *The* Compoſite *Column is fluted the ſame as the* Corinthian.] To divide a Pilaſter into its Flutes and Fillets: Let the Line A B, *Fig.* 3. repreſent the Breadth of a Pilaſter to be divided into its Flutes and Fillets, divide the Line A B into 29 equal Parts, giving three to every Flute, and one to every Fillet, ſo will the Pilaſter be divided into ſeven Flutes and eight Fillets.

If you make with the Line A B an equilateral Triangle, and from the Point E draw Lines through every Diviſion of the Line, A B, it will make a Scale ready for the Diviſion of any other Pilaſter, as appears by the Line C D, and the Pilaſter raiſed thereon.

CHAP. XVI.

To deſcribe the IONIC *Volute.*

PLATE XVII.

FIRST, Draw the Aſtragal A B, and through the Middle thereof the Line E F; then from the Top of the Abacus, let fall, perpendicular to the former, another Line paſſing through the Center of the Circle, or Eye, of the Volute, as G H. Within this Circle are twelve Centers marked 1, 2, 3, 4, *&c.* to 12, on which the Contour of the Voluta is deſcribed, and are thus to be found. Deſcribe a Geometrical Square, whoſe Diagonals are one in the Horizontal Line, and the other in the Perpendicular Line, croſſing each other in the Center of the Eye; from the Middle of the Sides of this Square draw two Lines which divide the Square into four, and each Line being divided into ſix

Parts, gives the twelve Centers, or Points, required, as they are numbered in the Eye of the *Volute*. To deſcribe the *Volute*, open your Compaſſes from No. 1. (in the Eye of the *Volute)* to the Interſection of the Perpendicular, and the lower Part of the Abacus, and draw a Quarter of a Circle, *viz.* continue it till it meets the Horizontal Line E F.

Secondly, On the Point 2, place your Compaſſes, and open them to the Arch laſt deſcribed, and continue the Arch-Line till it meets the Perpendicular G H.

Thirdly, On the Point 3, place your Compaſſes, and open them to the Arch laſt deſcribed, and continue the Arch-Line till it meets the Horizontal Line E F.

Fourthly, On the Point 4, place your Compaſſes and open them to the Arch laſt deſcribed, and continue the Arch-Line till it meets the Perpendicular G H, and in like manner you may turn it about till you have gone through all the twelve Centers, which will deſcribe the Contour of the *Volute* as required. The inſide Line, or Border, is deſcribed by a ſecond Draught, in the ſame Manner as the former, only placing the fixed Foot of the Compaſſes in twelve other Centers, very near the firſt, *viz.* at one fifth Part of the Diſtance that is between the former, reckoning towards the Center of the Eye; and theſe twelve Centers are repreſented by the twelve Points in the Eye of the *Volute* made larger than any other, on which the inſide Line may be deſcribed as required.

CHAP. XVII.

To draw an Intire Order according to the Doric *Order.*

PLATE XVIII.

1. HAVING faſtened the Paper on the Draught-Board; by the Help of your Tee-ſquare, draw the Baſe Line M N, whereon the Column is to be erected.

2. Erect the perpendicular Line A B, equal to the Height you intend the Column ſhall be.

3. By the Help of the Scale deſcribed in *Chapter* IX. *Plate* X. find the Diameter to the limited height A B, and divide it into Minutes for a Scale to work by.

4. Take your Compaſſes, and from your Scale take off the Height of every particular Member contained in the Entablature of the Column, and prick it on the Central Line downward from the limited height B, towards A; as alſo the Heights in the Capital.

5. Take $82\frac{1}{2}$ Minutes, the Projection of the Cima-Recta, between your Compaſſes, and ſlide the Square about until the Side thereof is right over the Point B, your Compaſſes having the Projection of the Cima-Recta between them; ſet one Foot thereof in the Point B, and your Square's Side ſtill reſting over B; with the other Foot of the Compaſſes make two Pricks, as C D, and draw the Line C D, the Projection of the Cima-Recta: Draw the ſecond Line alſo to the ſame Length, through the ſecond Point upon the Line A B. Proceed in the ſame Manner until you have finiſhed all the Lines for the whole Entablature and Capital.

6. Take the whole Diameter in your Compaſſes, and from P meaſure off ſeven Diameters for the Length of the Shaft, which will reach down to O: From P ſet on the Breadth of the Aſtragal, and, as before taught, draw the Lines to form the Aſtragal.

7. Take your Compaſſes and ſet on the central Line from the Point O, the height of every Member contained in the Baſe and Pedeſtal of the Column: Having drawn all the Lines, both parallel and upright; laſt of all deſcribe the Mouldings, and delineate the Triglyphs thus; take half the Width of the Triglyphs between your Compaſſes, *viz.* 15 Minutes, and prick it down on each Side of the central Line of the Column, and draw the Out-line thereof, and for the Channels divide the Breadth of the Triglyph into 12 equal Parts, every Channel and Space between, hath two of thoſe equal Parts, and the Semi or half Channels on the Side hath one of thoſe Parts: The Breadth of the Gutta's that are under the Triglyphs, are equal to two of thoſe Parts.

8. To diminiſh the Column.

At one third of the height O G, draw the Line E F, and on the Point Q deſcribe a Semicircle. Divide Q G into four equal Parts, and through thoſe Parts draw the Lines H H, I I, K K, at pleaſure, and from L draw the perpendicular Line L *d*; divide

P the

the Part of the Circle *d* E into four equal Parts, and draw the parallel Lines *a b c d*, ſo as to touch the Semicircle; then erect the perpendicular Lines *a* K, *b* I, and *c* H, and at the interſecting Points E K I H L, prick in Pins or Nails, and bend a thin Ruler round them, and draw by the ſide thereof the out-line E L, and it will form a true Diminution of the Column as required.

C H A P. XVIII.

How to draw a Frontiſpiece according to any of the Five Orders.

P L A T E XIX.

E X A M P L E.

SUPPOSE the Frontiſpiece to be drawn by the *Doric* Order, with a Compaſs Pediment.

1. Draw the Baſe Line A B, and erect the perpendicular Line I H at pleaſure, and ſet thereon the Height you intend the firſt and uppermoſt Member ſhall be of, as ſuppoſe H, and find the Diameter to the Height I H, as is taught in *Chapter* X.

2. Conſider how many Triglyphs you would have placed between thoſe over the Columns, which in this Example are three; then ſeek, by *Chap.* VIII. *Sect.* II. what muſt be the Intercolumniation for 3 Triglyphs between thoſe placed over the Columns, and you will find the Intercolumniation to be 5 Diameters, that is, the Diſtance from the central Line C E, to the central Line D F.

3. The Intercolumniation being found, take half thereof between your Compaſſes, and ſetting one Foot in the Point I; make a Point both ways upon the Line A B, at C and D, erect the perpendicular Lines C E and D F, for the central Lines of the Columns.

4. Upon the Baſe Line A B, ſpace out the Triglyphs thus; take 15 Minutes, the half Breadth of one of the Triglyphs between your Compaſſes, and prick it on both Sides of the Point C, as *a*, *b*, and on both Sides of the Point I, as *e f*, and on the Point D, the two Points *c*, *d*: Take 45 Minutes, the Height of the Frize (which is the Breadth of the Metops) between your

Compaſſes,

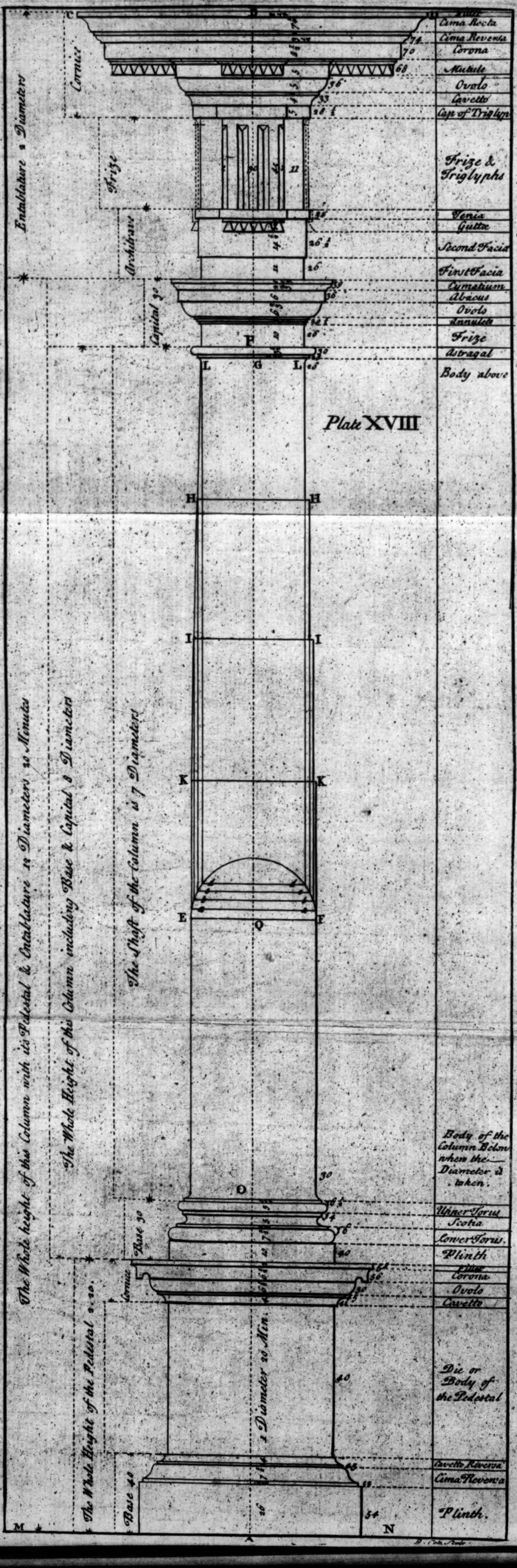


Plate XVIII
The Whole height of this Column with it's Pedestal & Entablature 12 Diameters 20 Minutes
The Whole Height of this Column including Base & Capital 8 Diameters
The Whole Height of the Pedestal 2. 20.
The Shaft of the Column is 7 Diameters
Entablature 2 Diameters
Cornice
Frize
Architrave
Capital 30
Base 30
Cornice
Base 40
1 Diameter 20 Min.
Fillet
Cima Recta
Cima Reversa
Corona
Mutule
Ovolo
Cavetto
Cap of Triglyph
Frize & Triglyphs
Venia
Guttæ
Second Facia
First Facia
Cymatium
Abacus
Ovolo
Annulets
Frize
Astragal
Body above
Body of the Column Below where the Diameter is taken.
Upper Torus
Scotia
Lower Torus
Plinth
Fillet
Corona
Ovolo
Cavetto
Die or Body of the Pedestal
Cavetto Reversa
Cima Reversa
Plinth
C
D
L
G
L
F
H
H
I
I
K
K
E
Q
F
O
M
N
54
40
30
26

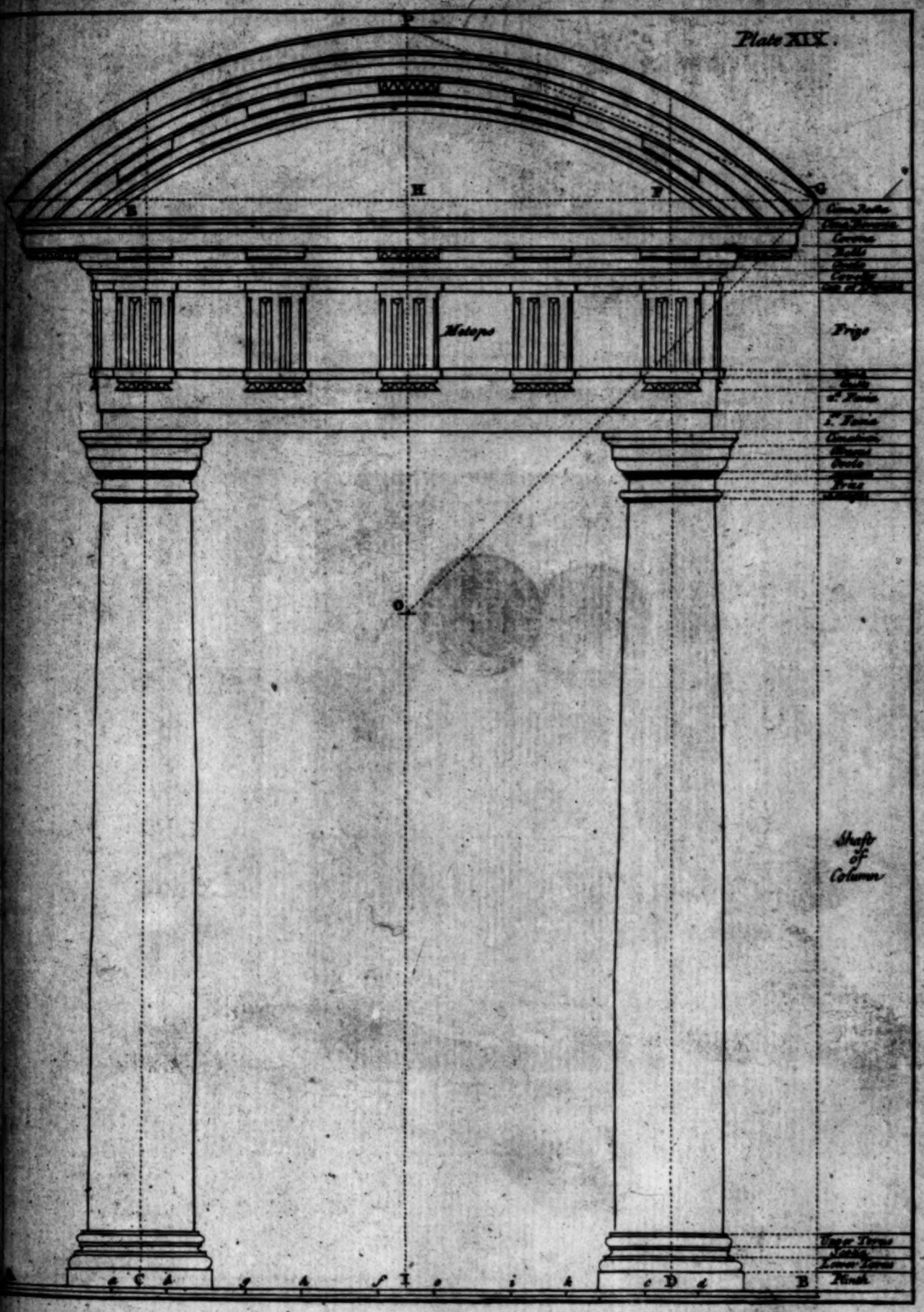
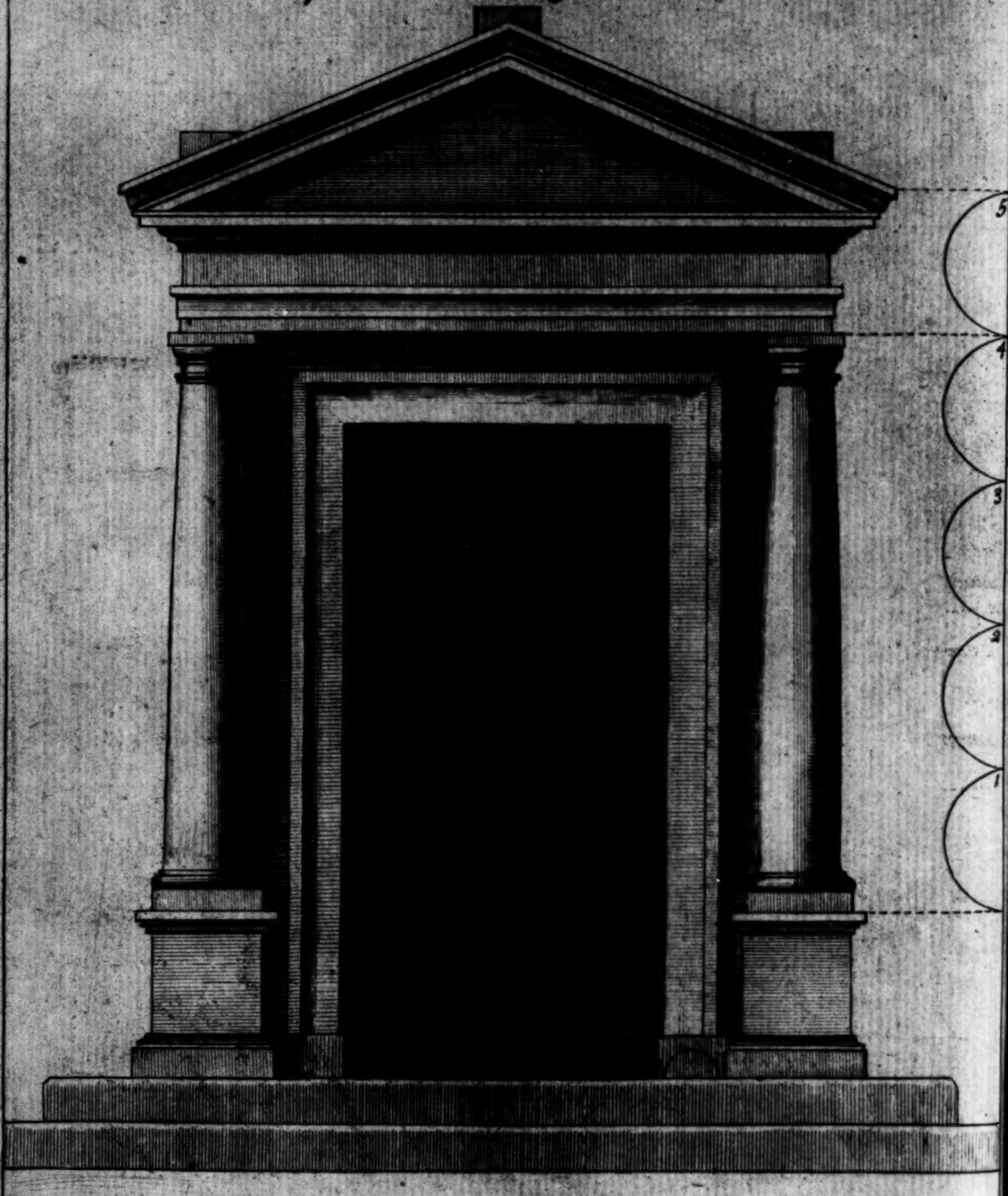


Plate XIX.
P
H
F
G
B
Metope
O
A
e
C
a
g
h
f
I
e
i
k
c
D
d
B
Cima Recta
Cima Reversa
Corona
Cavetto
Frize
Gutta
2d Fascia
1st Fascia
Cimatium
Ovolo
Frize
Astragal
Shaft of Column
Upper Torus
Scotia
Lower Torus
Plinth

Plate XX.

A Frontiſpiece & Door of the Tuſcan Order.



E. Hoppus deli

J. Mynde ſc.

Compaſſes, and place it from *f* to *b*, and from *e* to *i*, and from *g* to *h* is the Breadth of a Triglyph, ſo is alſo the Breadth *i k*. So have you the Baſe Line divided for the more ready delineating the Ornaments in the Frize.

5. Upon the central Line of the Column C E, from the Point E, prick on the Height of every Member, and when you begin to draw the Lines, omit the firſt two Lines that make the Square of the Cima-Recta; that is, omit drawing them with Ink, and only draw them with the Point of the Compaſſes, or Pencil, that they may not be diſcovered when your Draught is finiſhed; and as to all the other Lines, you may proceed in Drawing of them as was directed in the foregoing Chapter; for theſe two upper Lines are omitted, becauſe of the Cornice in the Pediment mitering to the level Returned Cornice.

To find the Pitch of the Pediment.

Set one Foot of the Compaſſes in H, extend the other to G; the Compaſſes ſtill reſting in H, turn them round to the interſecting Point *o*, for the Center of the Pediment required.

Note, 'Tis the ſame Rule to find the Center for a Raking Pediment, as for a Compaſs one, as may be ſeen by the dotted Line P G.

CHAP. XIX.

Divers other Frontiſpieces with their Doors.

PLATE XX.

IS a Frontiſpiece and Door of the *Tuſcan* Order with Columns on Pedeſtals, where may be obſerved, by the Circles, that the Height of the Door is 2 Diameters, or twice its Breadth, and the Entablature a fourth Part of the Length of the Column.

PLATE XXI.

Is a Frontiſpiece and Door of the *Doric* Order, the Door is two Diameters and a fourth Part, as may be ſeen by the Circles; and the Entablature a fourth Part of the Length of the Pilaſter; and the Architrave a ſixth Part of the Breadth of the Door.

PLATE XXII.

Is an Entrance, or Arch, of the *Doric* Order with ¾ Columns on Pedeſtals; the Intercolumniation is 7 Diameters and ½; and the Proportion of the Height of the Opening, to the Breadth, is as 5 to 3, as may be ſeen by the Circles.

PLATE XXIII.

Is a Frontiſpiece and Door of the *Ionic* Order, with Pilaſters fluted, the lower Part cabled; the Door is 2 Diameters and ⅓ high; and the Entablature a fifth of the Length of the Pilaſter; alſo the Height of the Sub-Plinth is the Diameter of the Pilaſter, as may be ſeen by the Circles.

The Manner of Pannelling the lower Part of this Door, is exceeding ſtrong and ornamental.

PLATE XXIV.

Is a Niche of the *Ionic* Order with Columns on Pedeſtals; the Height of the Niche is 2 Diameters; and $\frac{4}{6}$; and to the Top of the Key-Stone 3 Diameters; alſo the Height of the Impoſt, Breadth of the Architrave, and Bigneſs of the Key-Stone, are explained by the Circles.

Here is an inverted circular Pediment, for the ſake of Variety; but if not approved, take the Pitched one as ſhewn by the dotted Lines.

PLATE XXV.

Is a Frontiſpiece and Saſh-Door of the *Corinthian* Order, with Pilaſters very proper for a Garden Front; the Height is 2 Diameters and

Plate XXI.

A Frontispiece & Door of the Dorick Order.

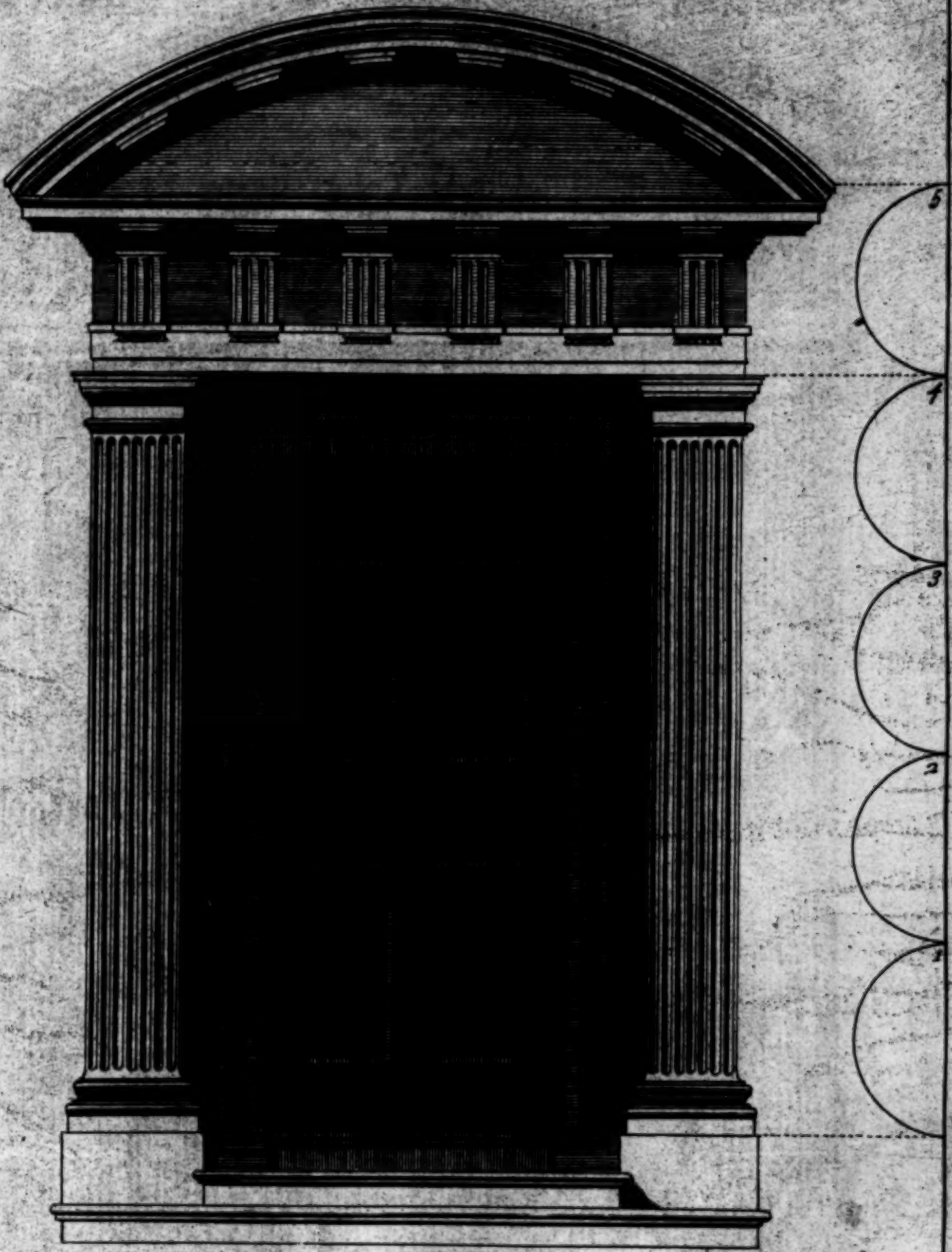


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Plate XXII

A Dorick Entrance

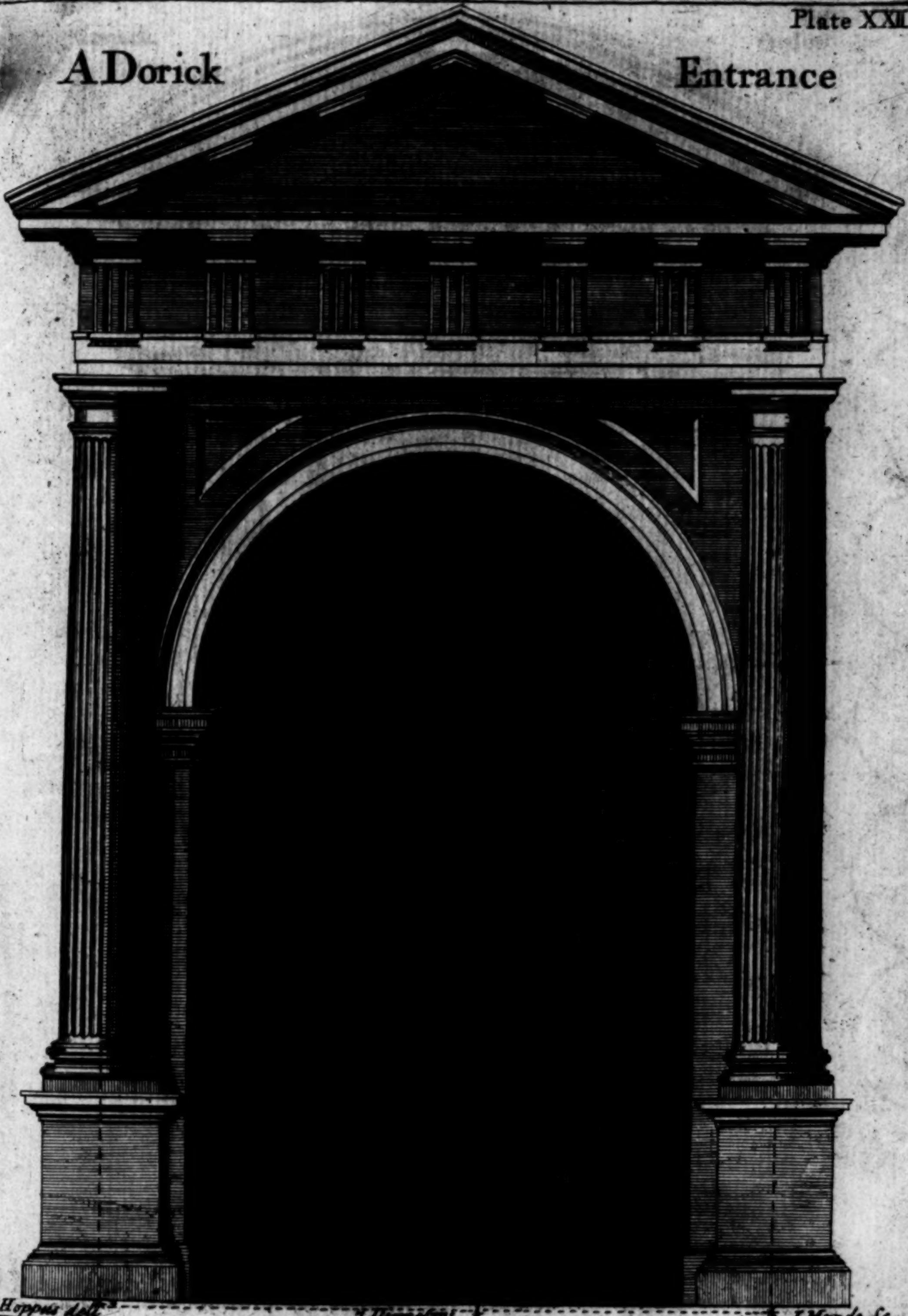

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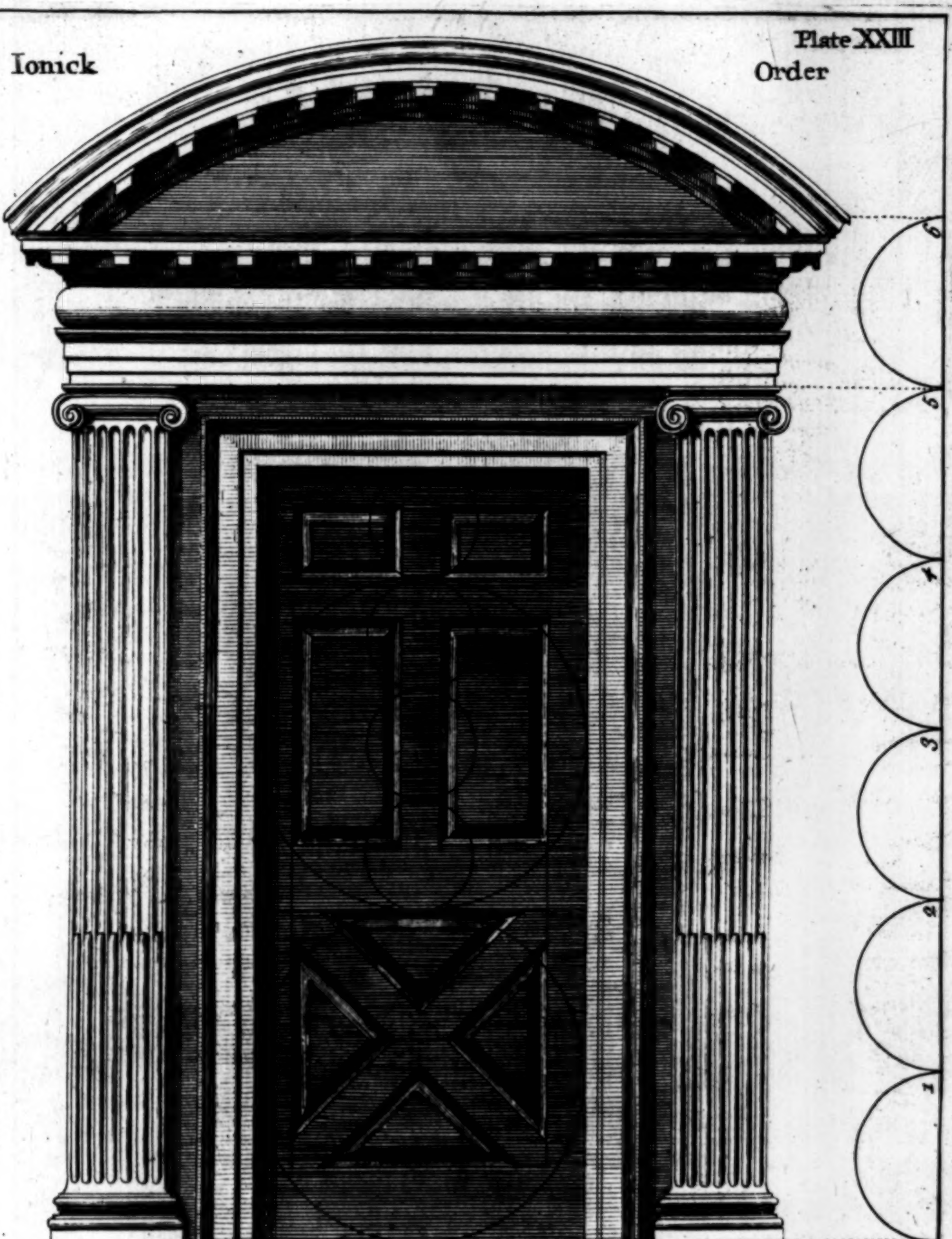
Plate XXIII

Ionick Order



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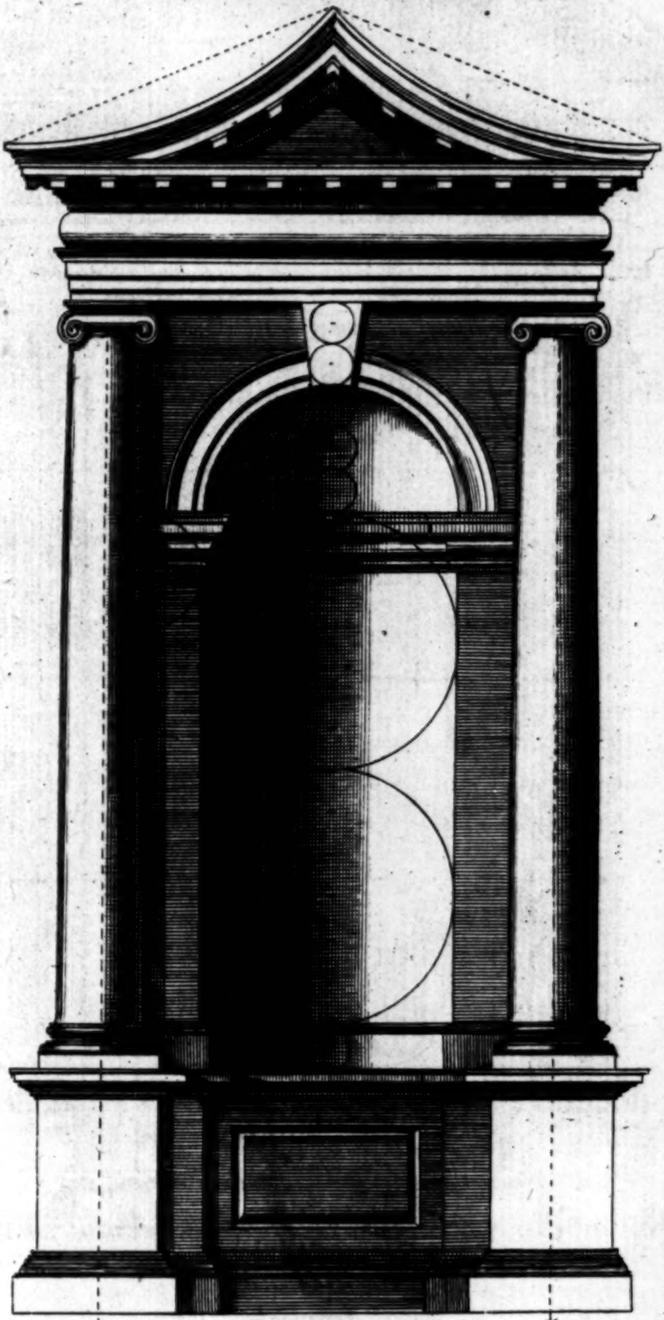
An Ionick Niche.



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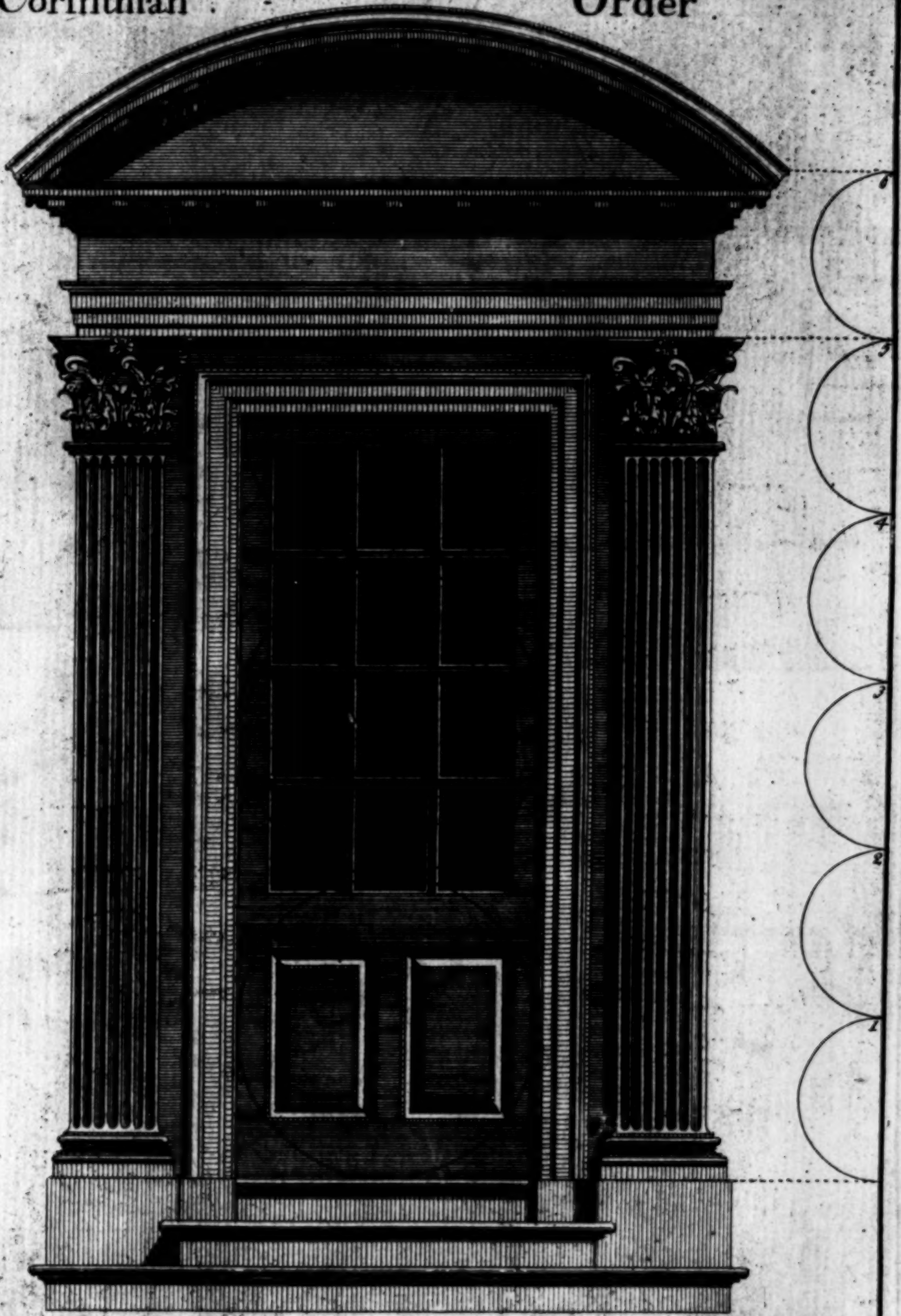
Corinthian Order

Plate XXV



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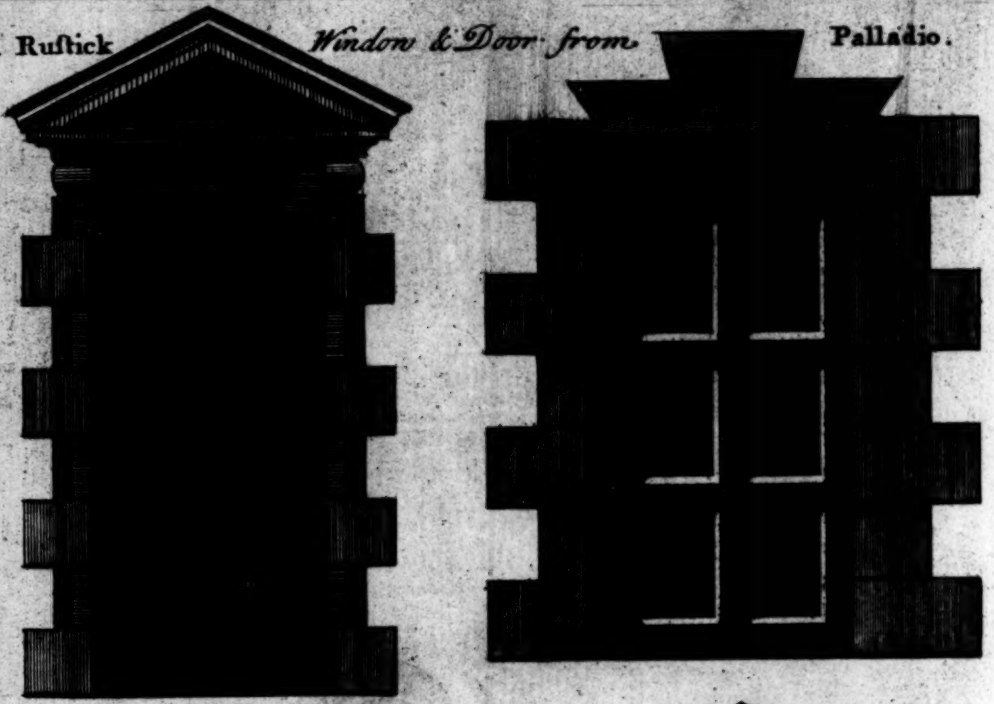
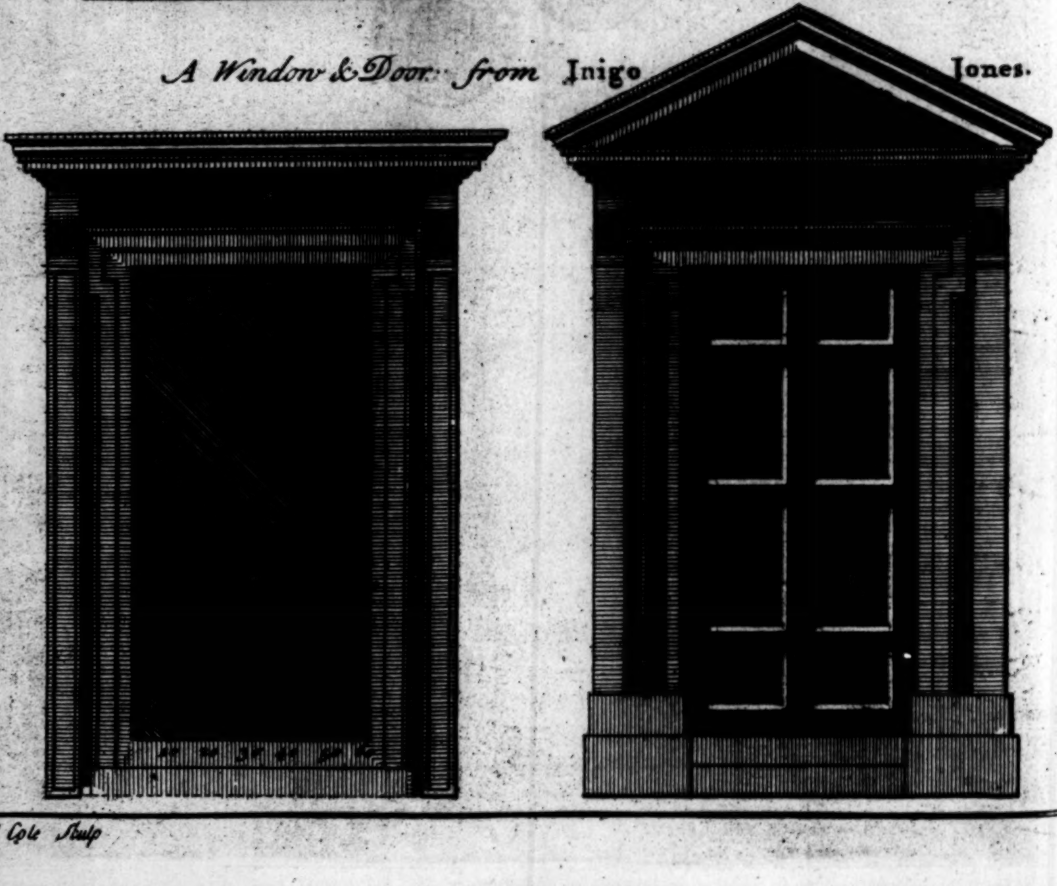
B. Cole. Sculp.

Plate XXVII

A Ruſtick *Window & Door from* Palladio.



A Window & Door from Inigo Jones.



B Cole Sculp

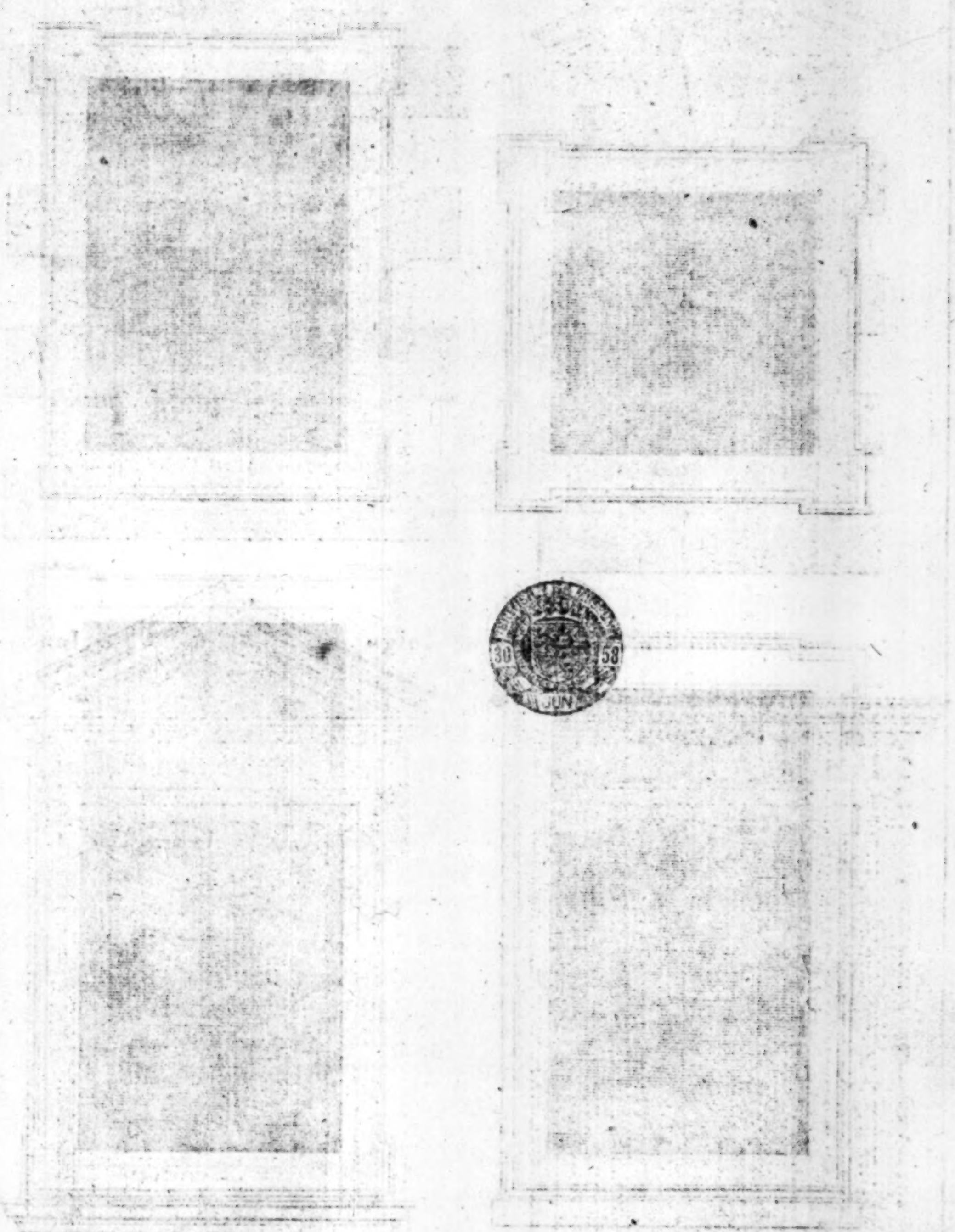


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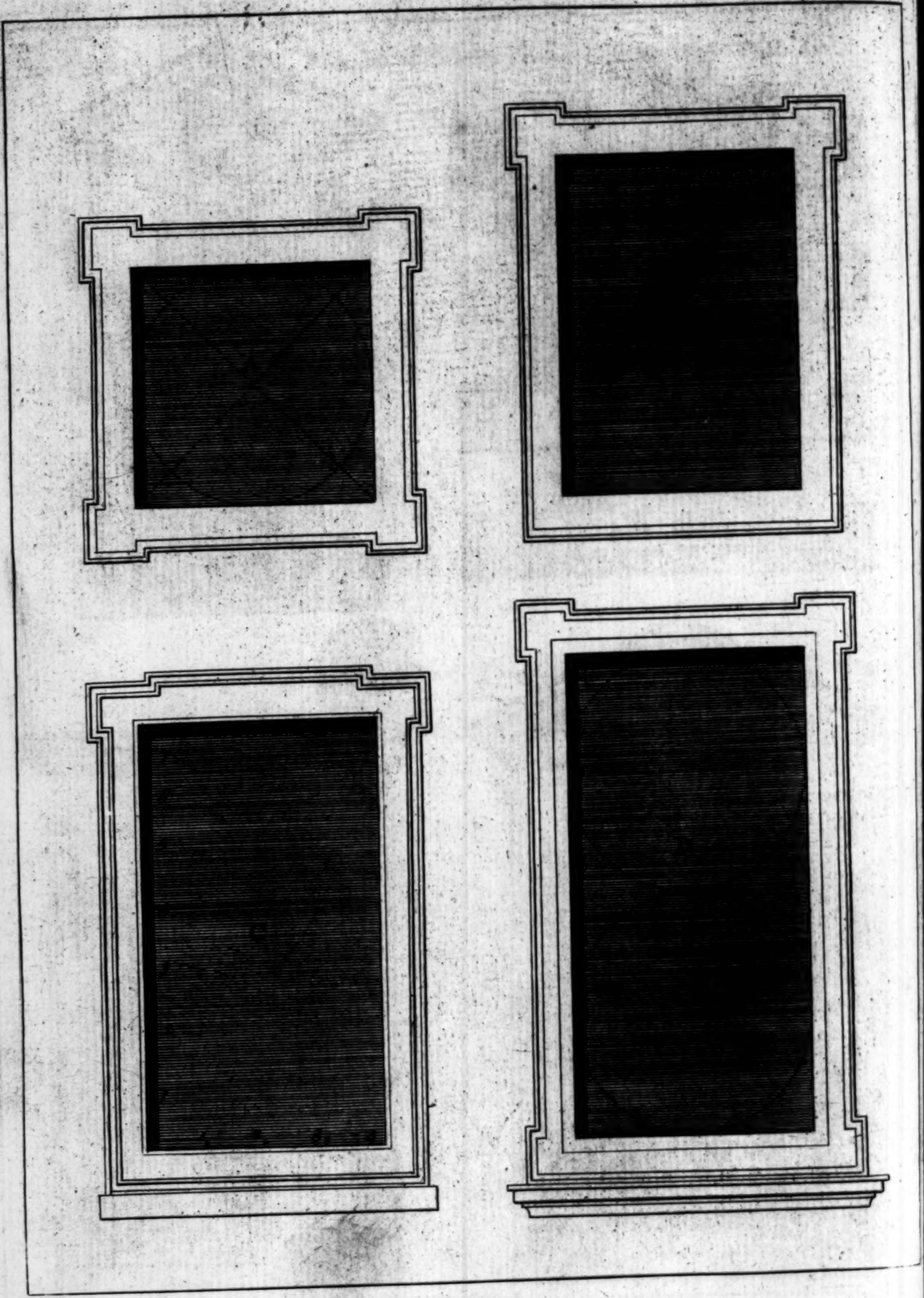
Plate C.



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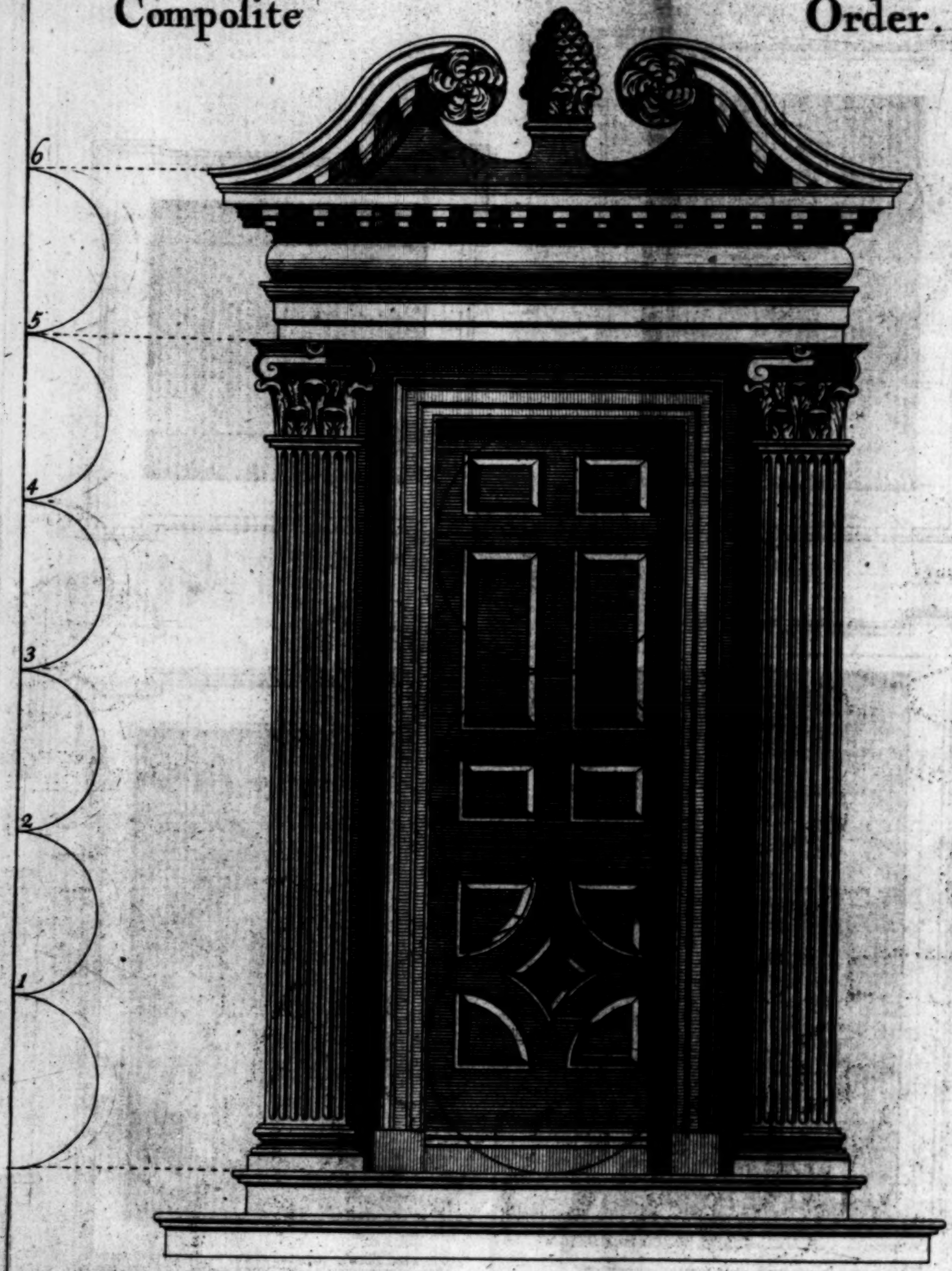
Compoſite Order.



E. Hoppus Delin.

J. Mynde ſc.

and $\frac{1}{2}$, and the Entablature a fiſth of the Length of the Pilaſter, and the Height of the Sub-Plinth, 1 Diameter of the Pilaſter.

PLATE XXVI.

Is a Frontiſpiece and Door of the *Compoſite* Order, with a Scrol Pediment open in the Middle; the Height of the Door is 3 Diameters, and hath a manner of Pannelling different from all the foregoing; alſo the Entablature is $\frac{1}{5}$ of the Length of the Pilaſter, as may be ſeen by the Circles.

CHAP. XX.

Proportions for Windows.

HAving ſhewn the various Proportions for *Doors*, according to their Dreſs and Diſtinction, it will be neceſſary to ſhew the different Sizes of Windows, adapted ſo as to be agreeable to any Height of Story.

PLATE C.

On this Plate the upper Window on the left Hand marked A, is a true Square, the Height and Breadth being equal.

That of B hath for Height the diagonal Line of A, from Corner to Corner, they being all of one Breadth.

That of C hath for Height the Breadth and three Quarters, as ſhewn by the Diviſions on the Side and Bottom.

That of D is twice its Breadth in Height, than which Height none ſhould exceed.

All the Architraves are one ſixth of the Breadth, and are variouſly formed, as ſhewn on the Plate.

Some other Doors and Windows from the Antients.

PLATE XXVII.

Is a Door and Window from *Palladio*, and alſo a Door and Window from *Inigo Jones*.

PLATE

PLATE XXVIII.

Is a Window from *Palladio*, and one from the antient *Romans*, and alſo a *Venetian* Window.

PLATE D.

Here are ſhewn two grand *Piers* for Gates, adorned with Ruſtics in front, and Niches behind, with a *Sphinx*-like Figure on each; the Opening, or Space between, is 3 times the Breadth of the ſaid Piers: Something like theſe are to be ſeen before His Grace the Duke of *Bedford*'s Houſe in *Bloomſbury* Square.

PLATE E.

On this Plate are three different Deſigns of Obeliſks, all drawn to the ſame Scale, and which are in a Proportion of 6, 7 and 8, Diameters in Height; and being alſo varied in the Ornaments and Heights of Pedeſtal, affords a great Diverſity; they are all diminiſhed one fourth Part of the Diameter at bottom, and the firſt and laſt form a Square for the finiſhing at top, alſo the middle one may be ſo finiſhed, this curvelineal Form being introduced for Variety. Theſe Obeliſks are lately much in uſe, as in St. *James*'s *Square*, *Lincolns-Inn-Fields*, for ſupporting Lamps; and there is alſo a ſtately one lately erected in the Center of *Red-Lion-Square*, *Holborn*, not unlike the higheſt of theſe.

Of the Ornaments of Doors and Windows.

PLATE XXIX and XXX.

1. They may be made divers Ways, as they are in theſe Plates deſcribed: And for the better underſtanding of which, I have ſet down the Height and Projection of every Member, by a Module and Minutes.

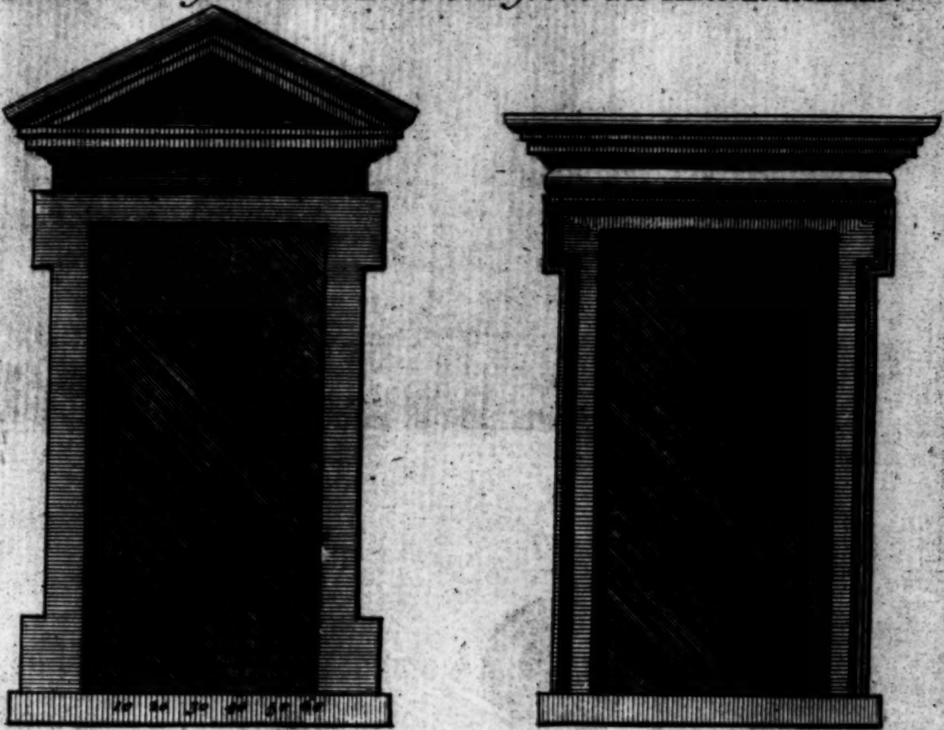
The Module is the Aperture, or Breadth of the Door, divided into 60 equal Parts or Minutes.

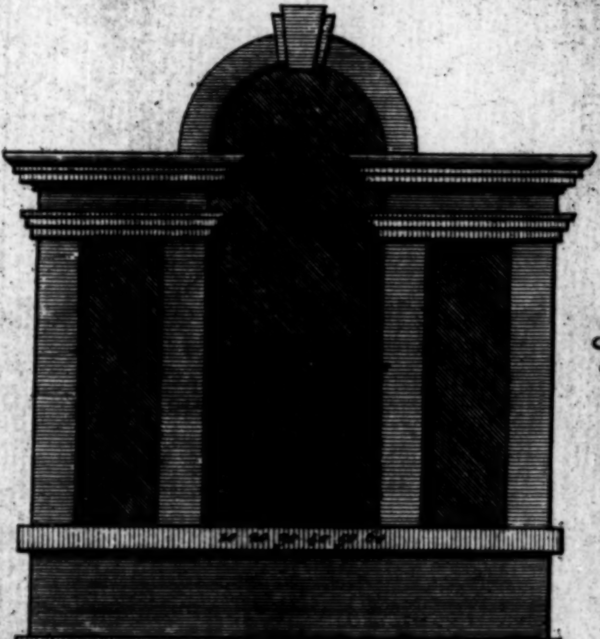
The Ornaments given to Doors and Windows, are the Architrave, Frize, and Cornice: The Height and Projection of every Member therein contained, is ſhewn by the Figures placed at the ground or naked Line, and at the Extremity of every Member.

Thoſe

Plate XXVIII

A Window from **Palladio** *& one from the* **Ancient Romans.**





Venetian *Window.*

B. Cole sculp.

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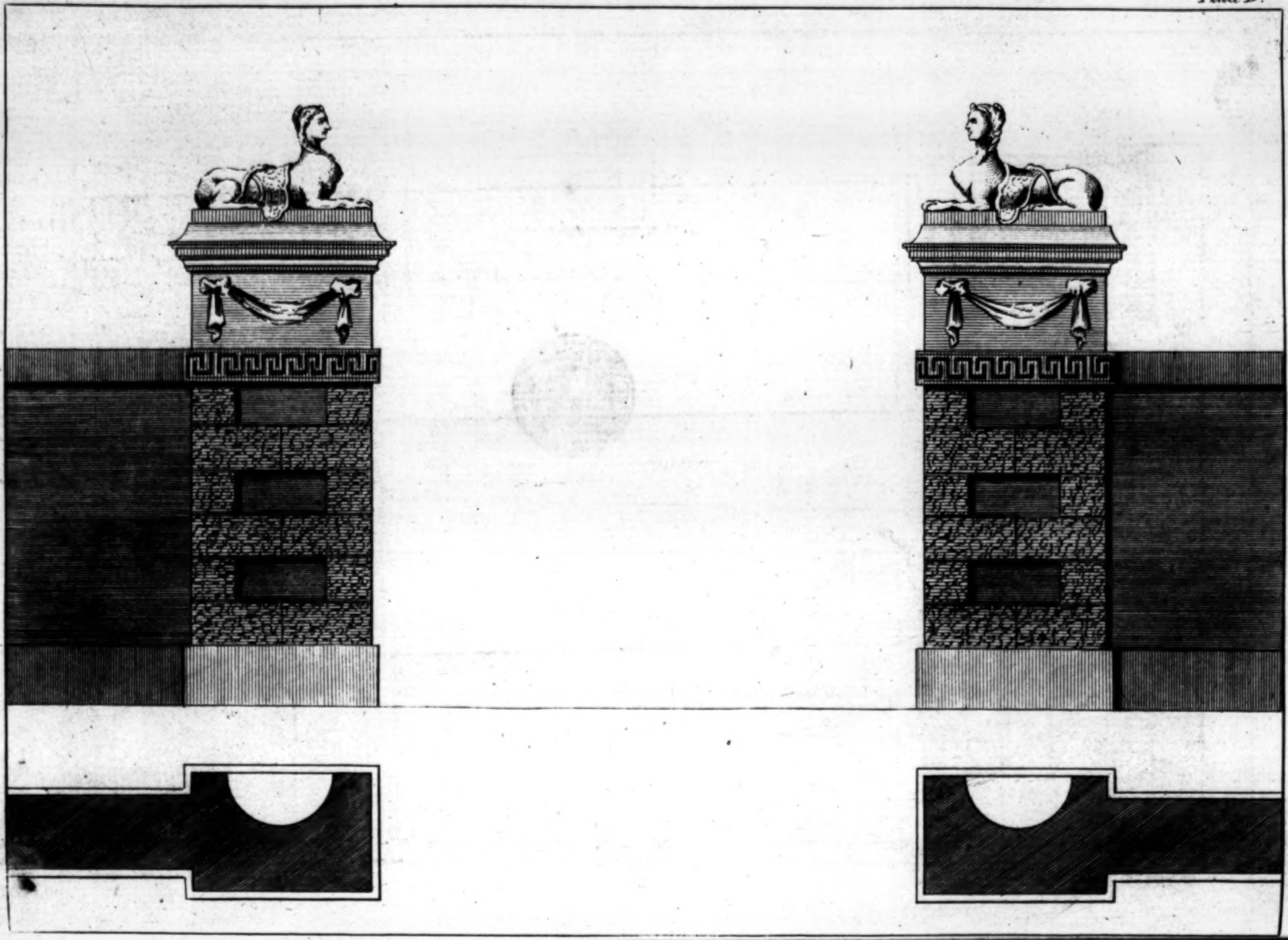
Plate D.



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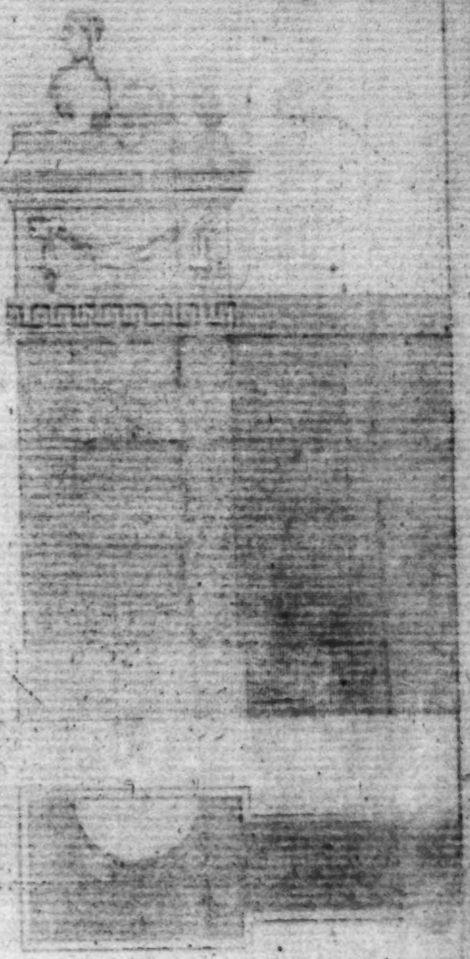
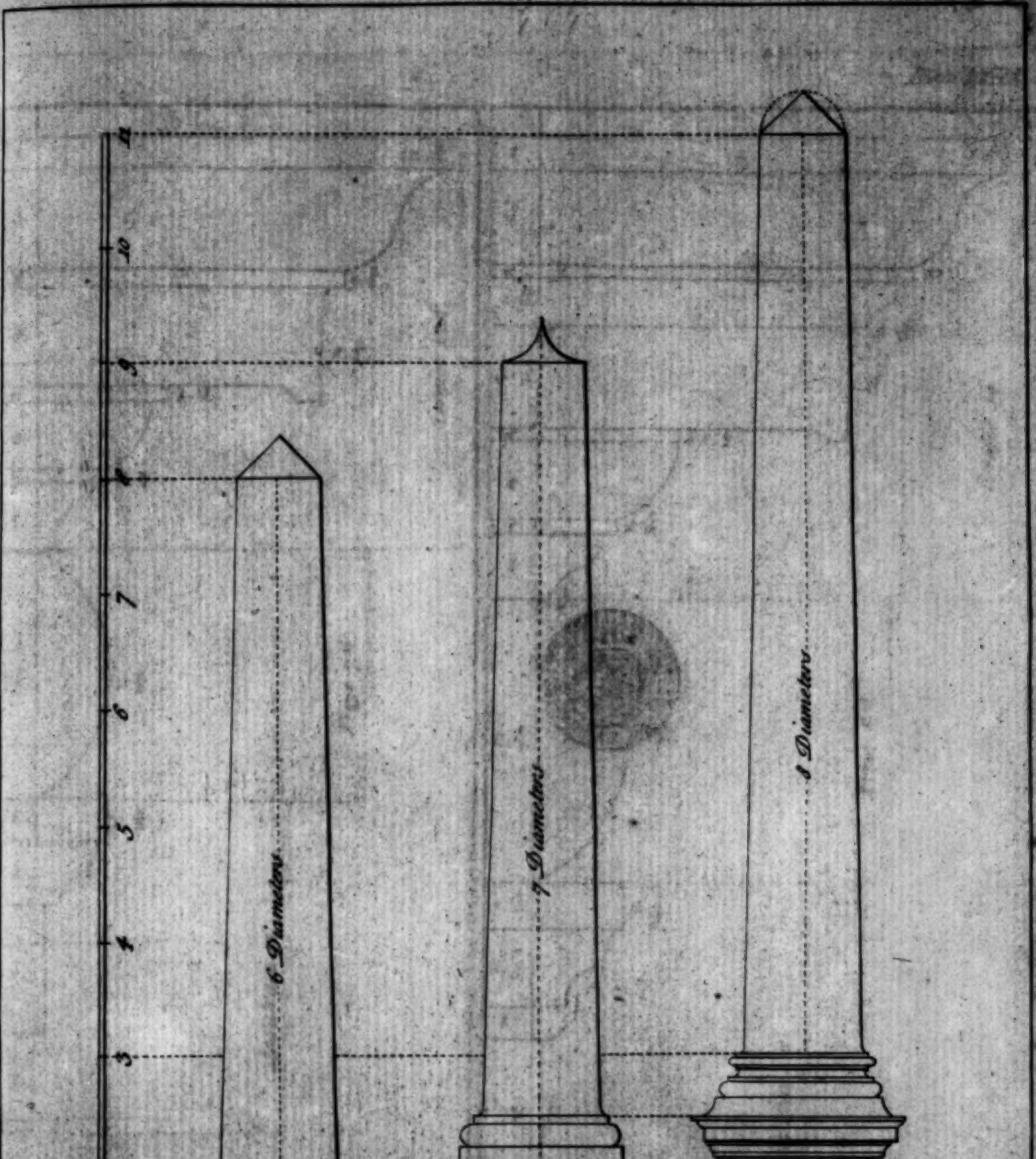
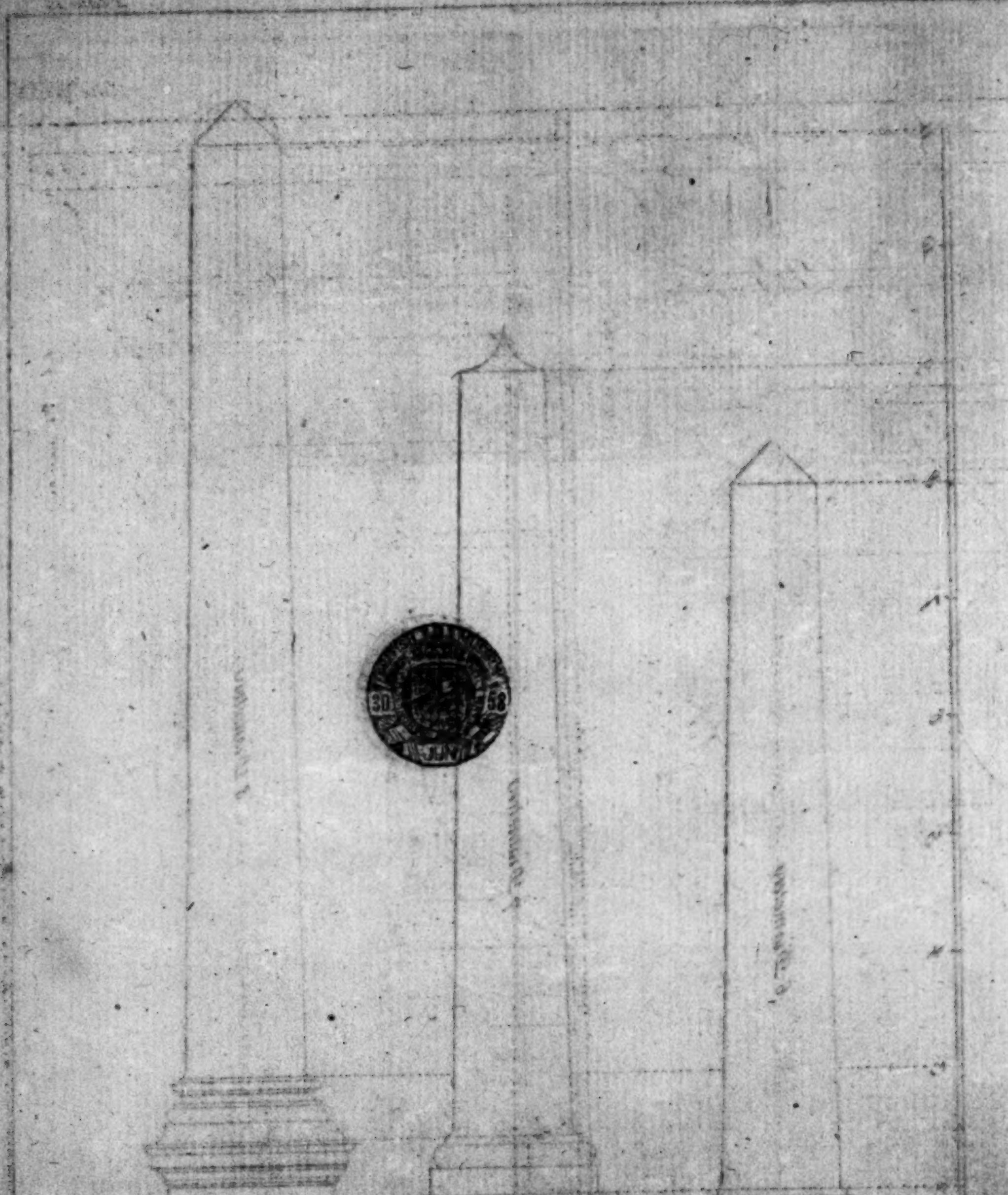


Plate II





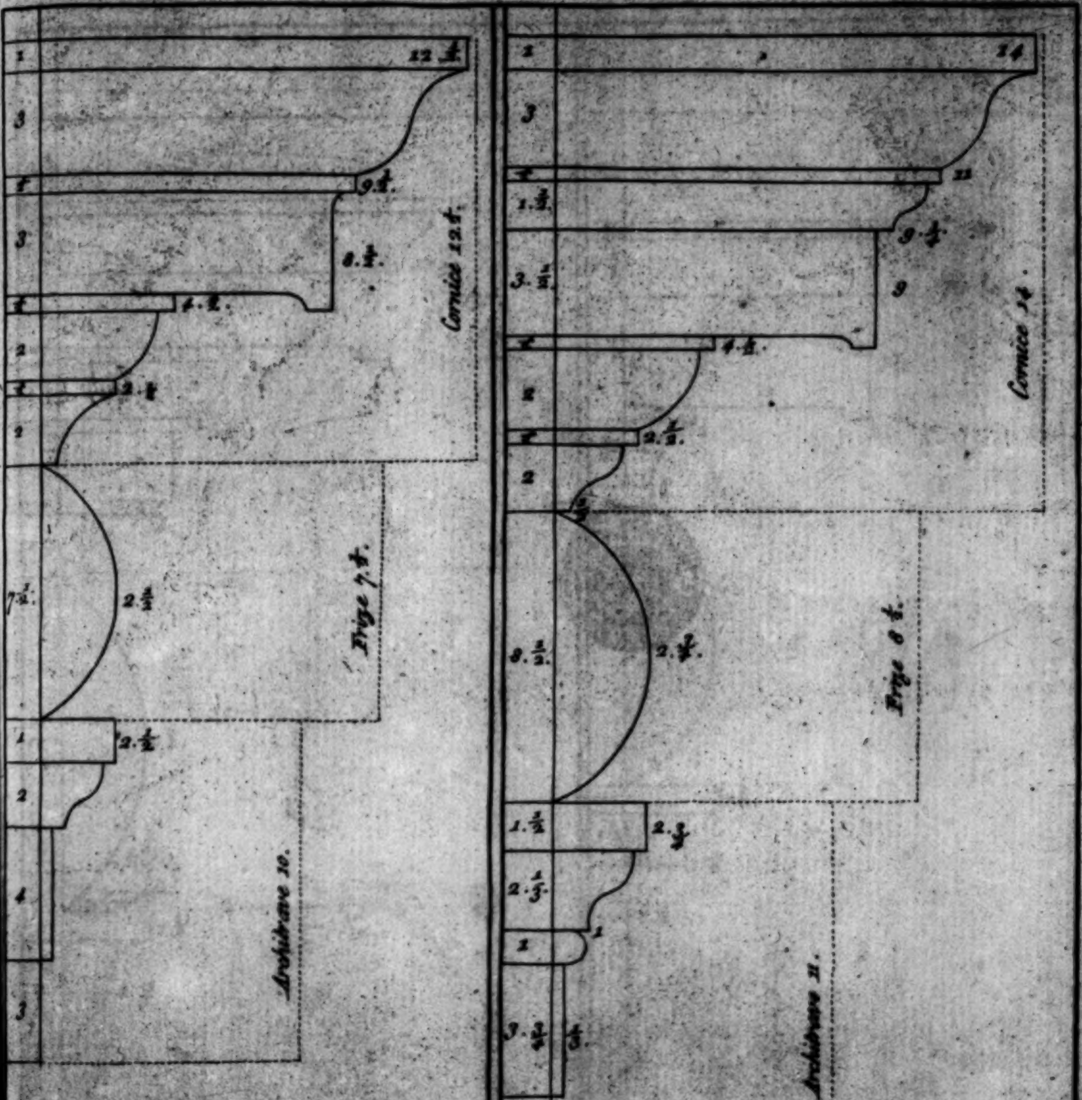

Cornice 12¼.
Frize 7¼.
Architrave 10.
Cornice 14.
Frize 8¼.
Architrave 11.
1
12¼
3
9¼.
3
8½.
4.2.
2
2¼
2
7½.
2½
1
2½
2
4
3
2
14
3
11
1½.
9¼.
3½.
9
4½.
2
2½.
2
8½.
2¾.
1½
2¾
2⅓.
1
1
3¾.
⅓.
2¾

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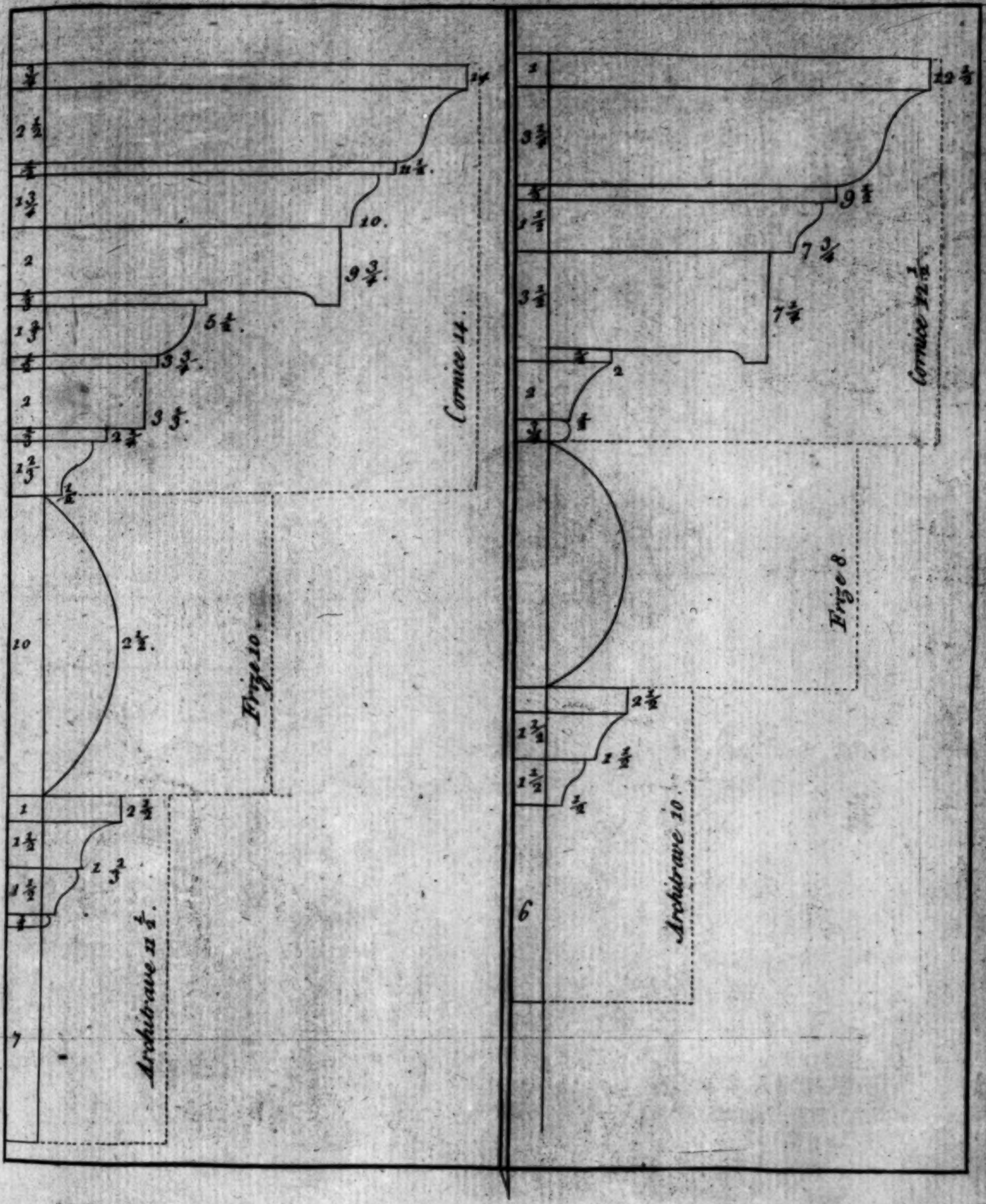
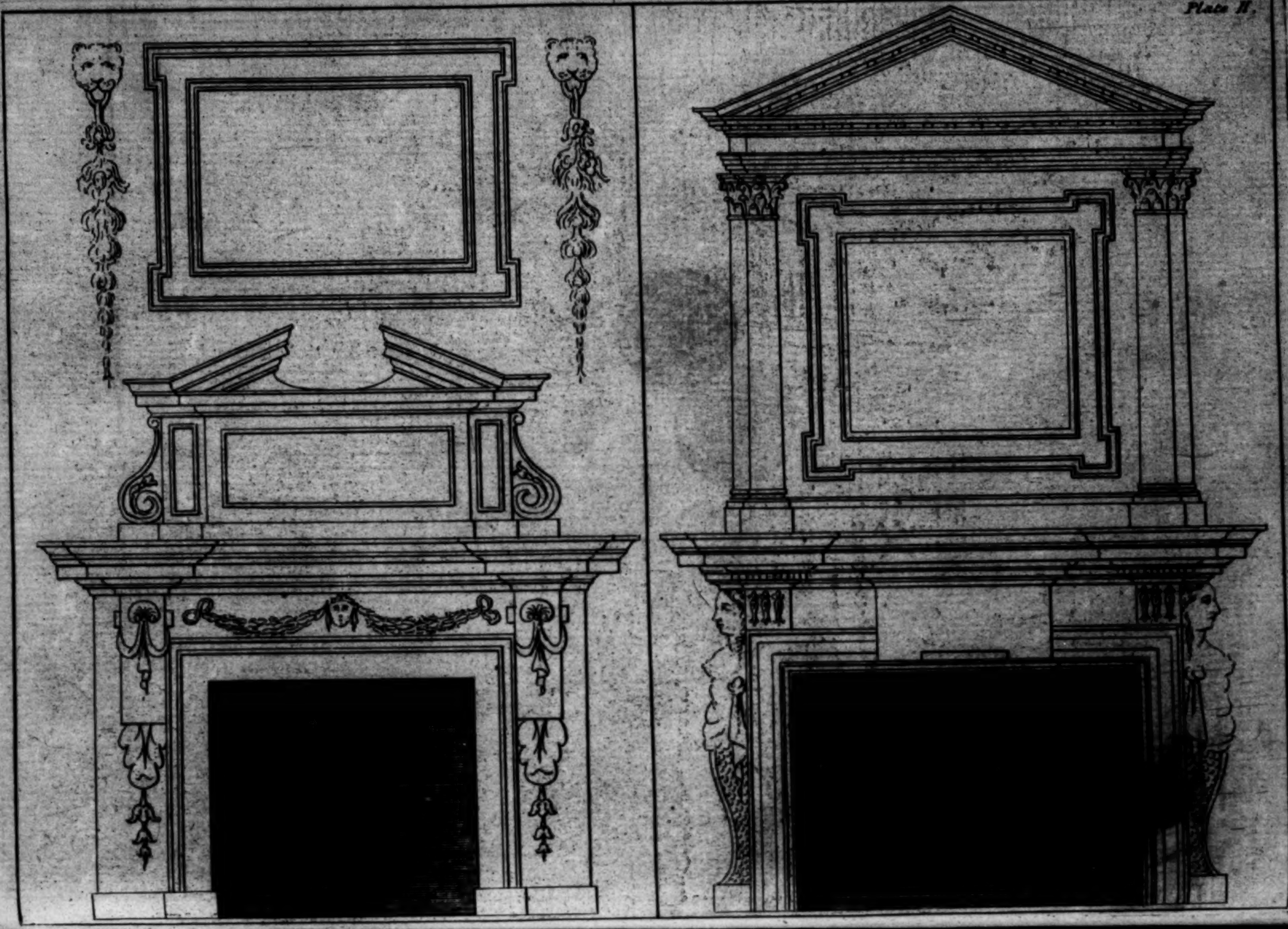
Plate XXX.



½
14
2 ½
½
11 ¼.
1 ¾
10.
2
9 ¾.
½
1 ⅔
5 ½.
½
3 ¾.
2
3 ⅗.
⅓
2 ¼
1 ⅔
½
Cornice 14.
10
2 ½.
Frize 10
1
2 ½
1 ½
2 ⅔
1 ½
½
7
Architrave 11 ½.
1
12 ½
3 ¾
½
9 ½
1 ½
7 ¾
3 ½
7 ¼
½
2
2
⅓
½
Cornice 12 ½
Frize 8.
2 ½
1 ½
1 ½
1 ½
¼
6
Architrave 10.

Plate II.



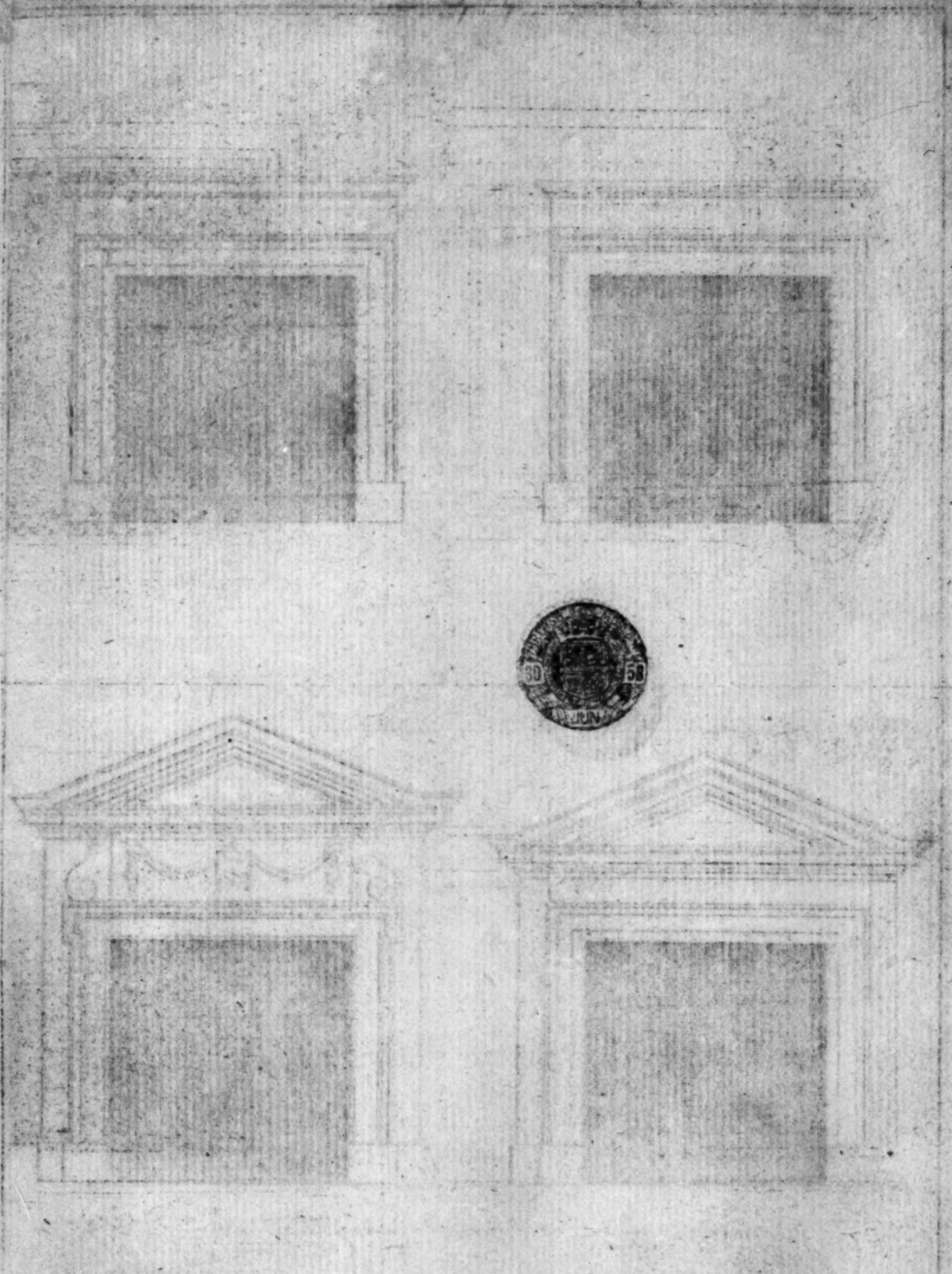


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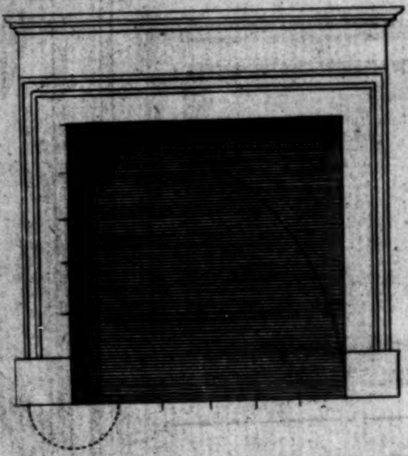
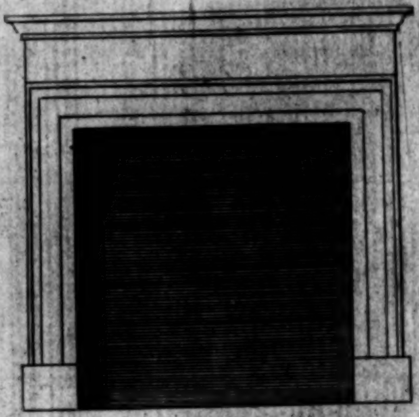
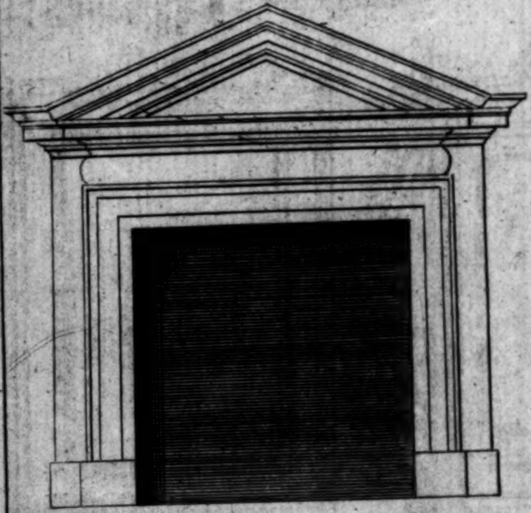
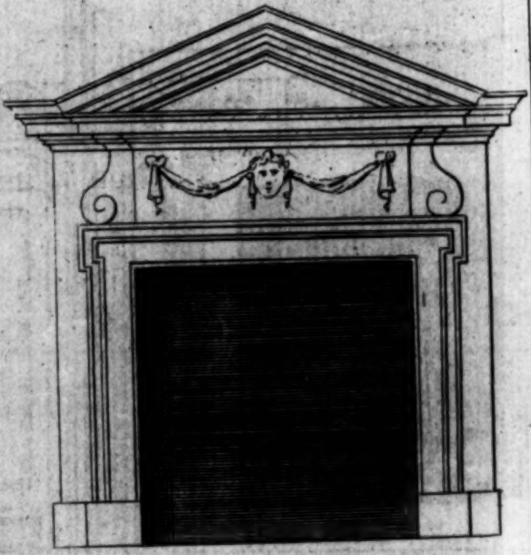
Plate G.









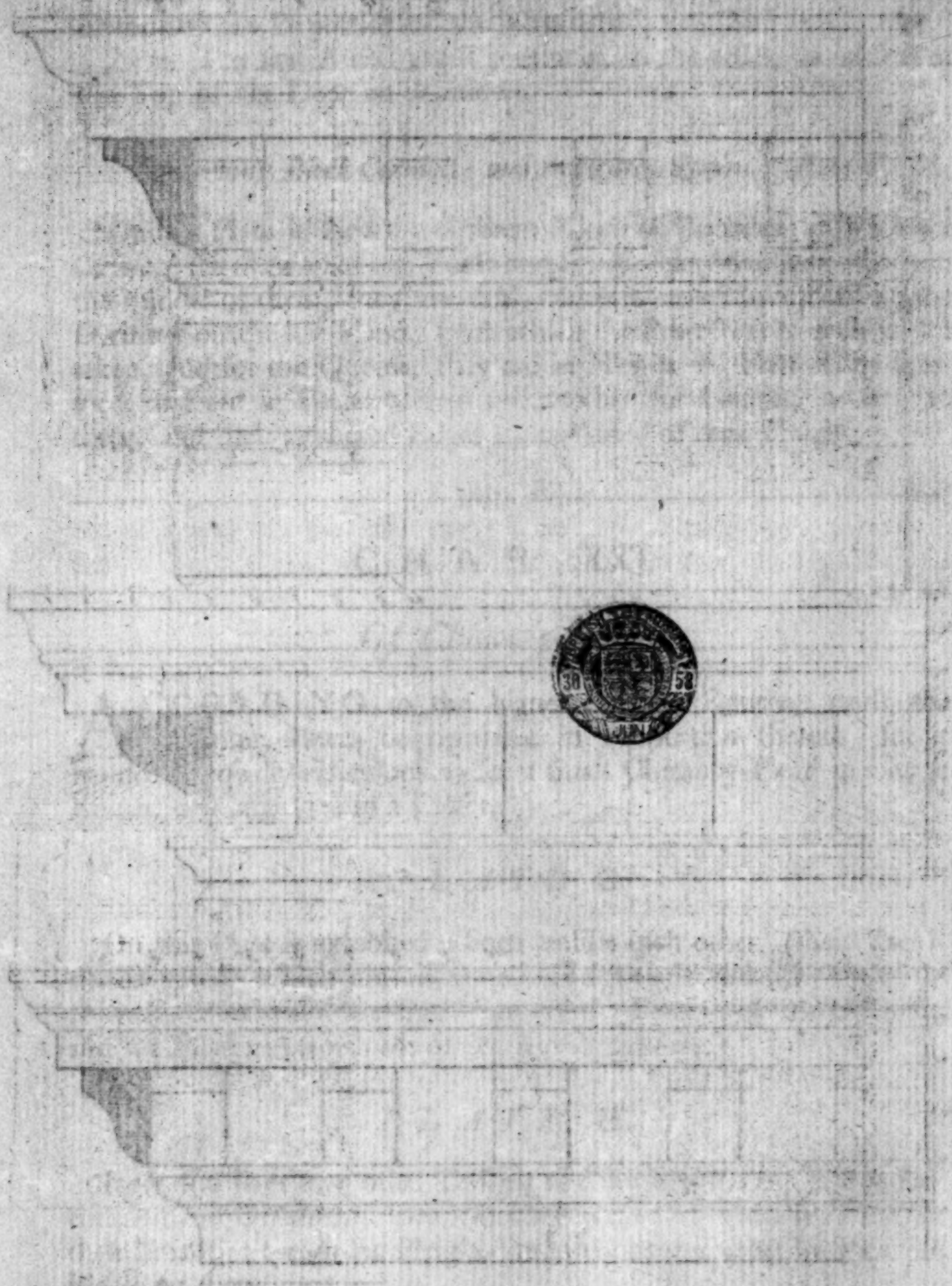


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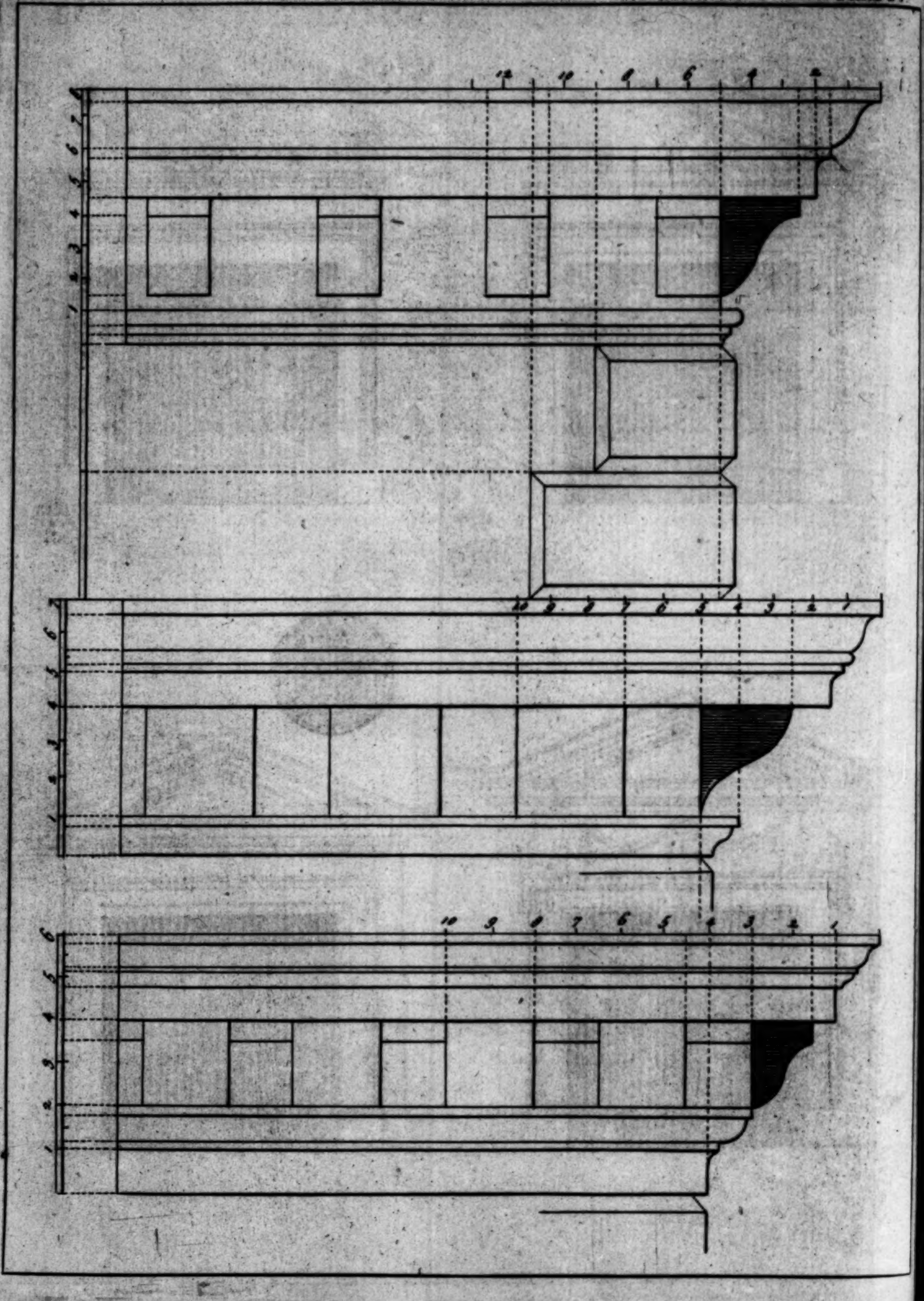
Plate V.



12 10 8 6 4 2
1 2 3 4 5 6 7 8
10 9 8 7 6 5 4 3 2 1
1 2 3 4 5 6 7
10 9 8 7 6 5 4 3 2 1
1 2 3 4 5 6

Thoſe between the Lines ſheweth the Height, and thoſe at the Extremity the Projection of the Members.

Note, The ſaid Architrave is continued on the Sides, as well as at the Top of the Door or Windows.

Concerning Block Cornices, and ruſticated Quoins. Plate F.

On this Plate is ſhewn 3 different Kinds of Cornices, called *Block Cornices*, by Reaſon of the Voids and Solids, like Modillions made in the middle of them, they are eaſily comprehended by obſerving the Diviſions on the left Hand, from which the Projection of each is alſo taken, and for the Quoins, they are in Height the Half of the Cornice, and are in Proportion to one another for Length, as two to three, and their cyphered Edges are cut off ¼ of their Height.

CHAP. XXI.

Of Chimney-Pieces.

ACCORDING to the bigneſs of the Rooms, muſt the Chimney-Pieces be regulated in Proportion thereto, for it would be equally ridiculous to ſee a ſmall Chimney-Piece in a large Room, as a large one in a Cloſet.

PLATE G.

On this Plate is exhibited 4 Sorts unlike each other, (their Vacuities excepted) which are all equal in Height and Breadth, their Architraves are always one ſixth Part of the Breadth of the Opening, and the Pilaſters two thirds of the ſaid Architrave.

PLATE H.

Here you have two other Deſigns of Chimney-Pieces, full of Decoration and Ornament, their Openings differ from the laſt, in that their Breadth exceeds the Height, and they have Frames for Pictures, &c. over them.

PLATE

PLATE I.

That nothing might be wanting to make this Work perfectly uſeful, here is added another Chimney-Piece of an expenſive Nature, tho' done but in Wood only; but if in different coloured *Marble*, will be exceeding Grand and Noble.

Of the Proportions of Rooms, as to Length, Breadth and Height, together with the Coving of their Ceilings. Plate *K.*

Here is ſhewn four different Deſigns of Rooms. That of No. 1 being a perfect *Cube* of 18 Feet every Way.

No. 2. Is 18 Feet by 24, or a Square and $\frac{1}{3}$, and hath the ſame Height as Breadth, *viz.* 18 Feet.

No. 3. Is 18 Feet by 30, or a Square and $\frac{2}{3}$, and is 24 Feet high, including the Cove, which is $\frac{1}{4}$ of the Whole.

No. 4. Is 18 Feet by 36, or 2 Squares on the Plan, and is the ſame Height as the laſt, including the Cove, which is alſo $\frac{1}{4}$ of the Whole.

Of Ornamenting Ceilings. Plate *L.*

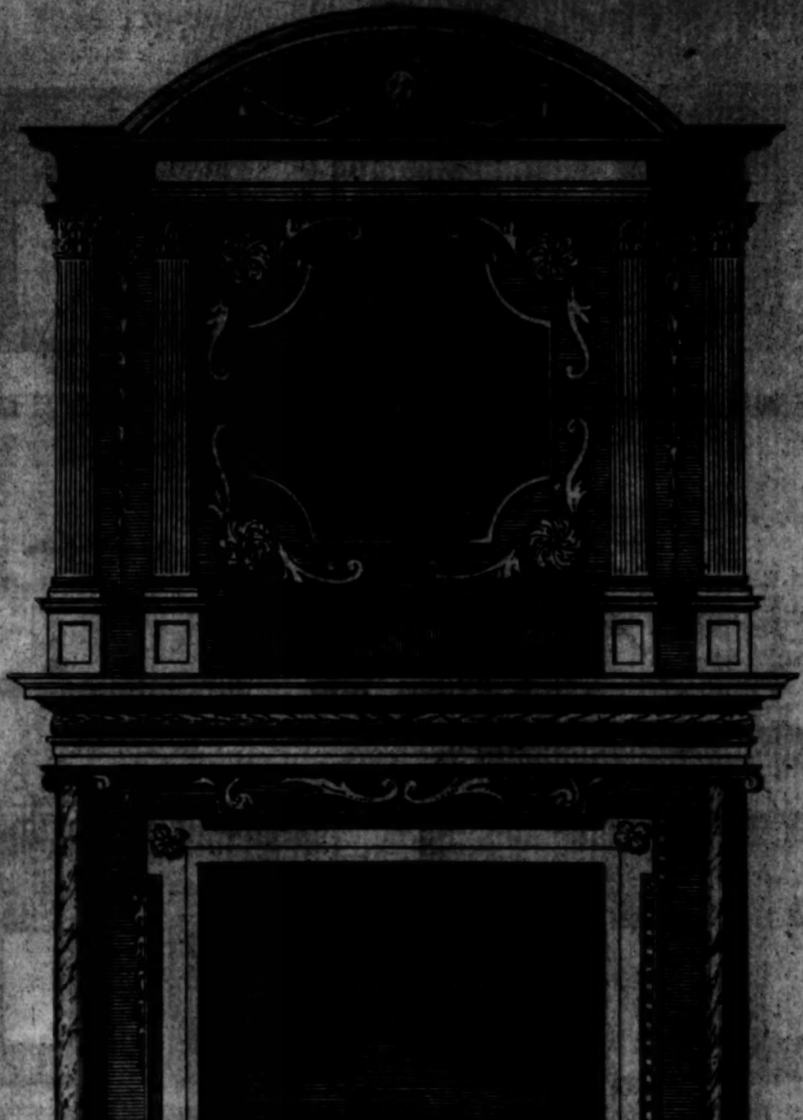
On this Plate is ſhewn 2 different Manners of a Flat Ceiling, and by being thus divided into Pannels, and adorned with Fret-Work, or Painting, muſt needs have a more pleaſing Effect, than if the whole were in one large Pannel; on the Side you have the Proportions for the Pannels and Mouldings, *&c.*

Of certain Ornaments called Frets. Plate *M.*

Theſe are much uſed on Picture-Frames. Soffites of Arches, on Architraves, and on Facias, *&c.* And ſometimes on the Plinths of Baſis, eſpecially if the other Members be carved; and though theſe Ornaments may be thought inſignificant, they have a delightful Appearance when truly wrought.

On this Plate, on the Outſide, you have 4 different Sorts. Two being formed by equal Diviſions of 15 Parts, and the other two of 11 Parts each; and although the Angles or Corners are uſually filled up with a Shell or Flower, inſtead of continuing the Fret round. Here is ſhewn how they may be turned round the Corner,

Plate I



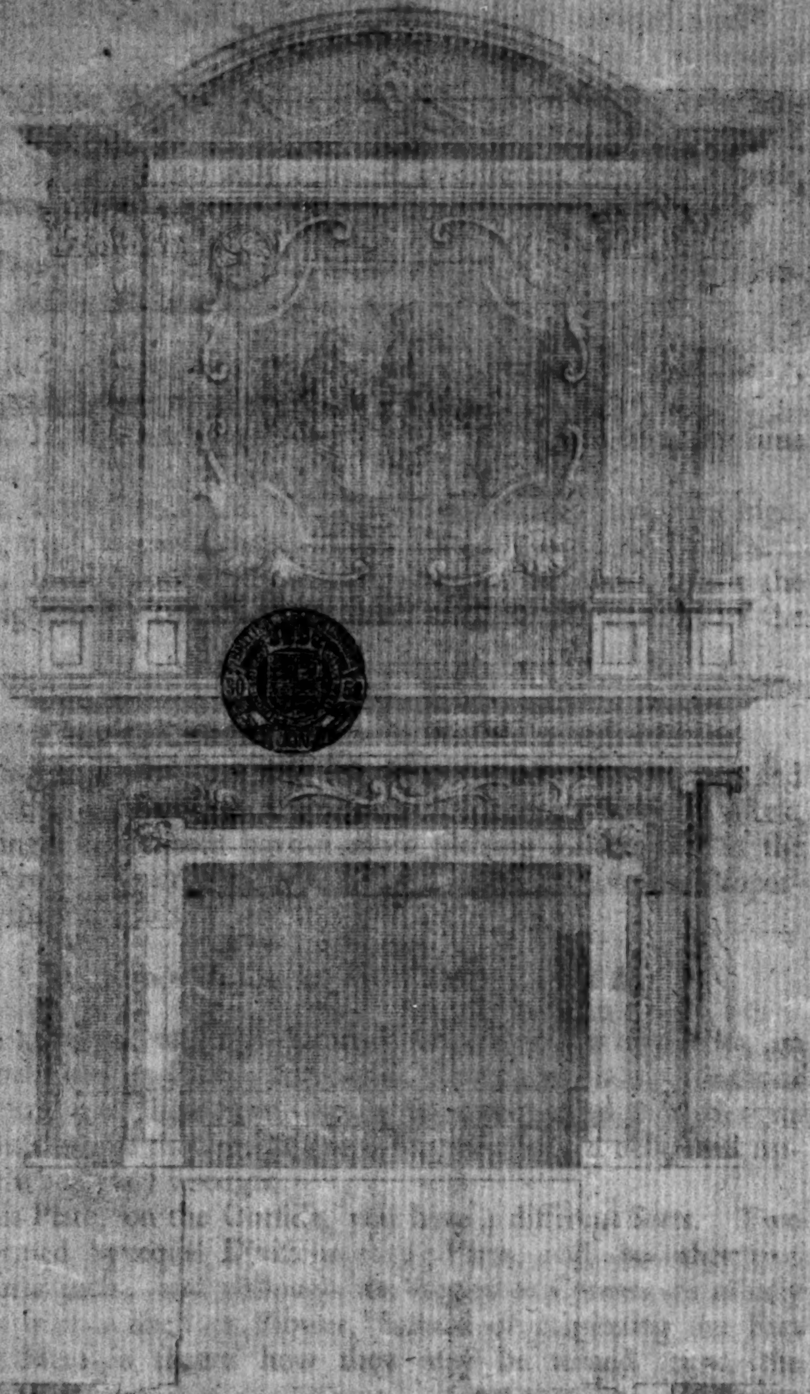
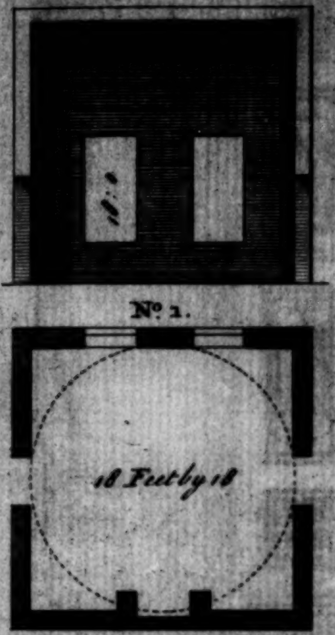


Plate X.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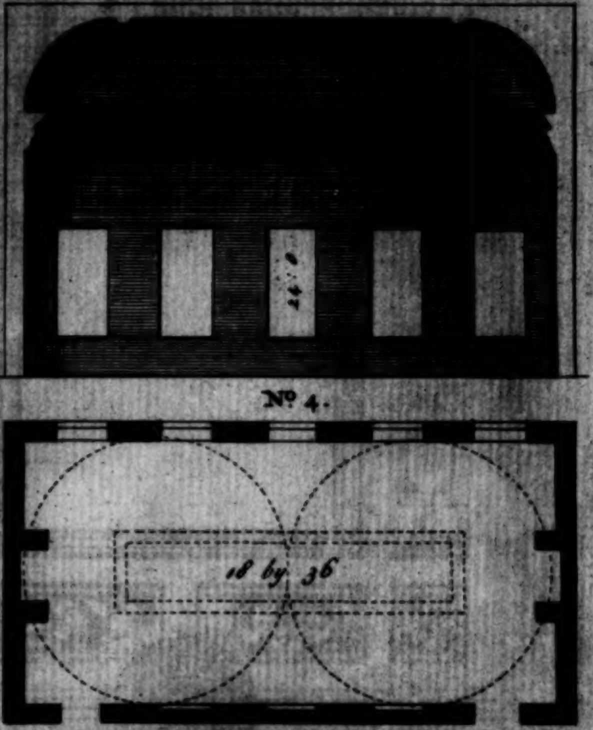
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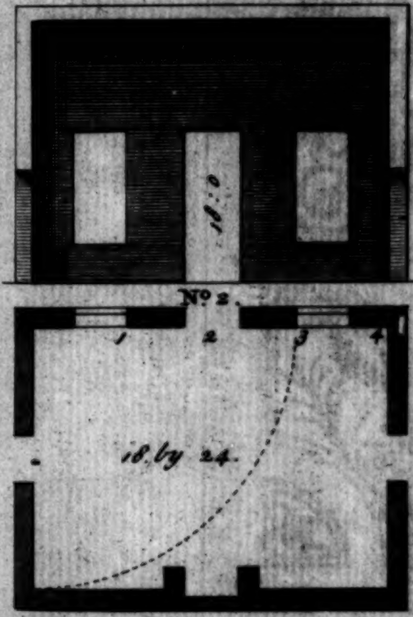
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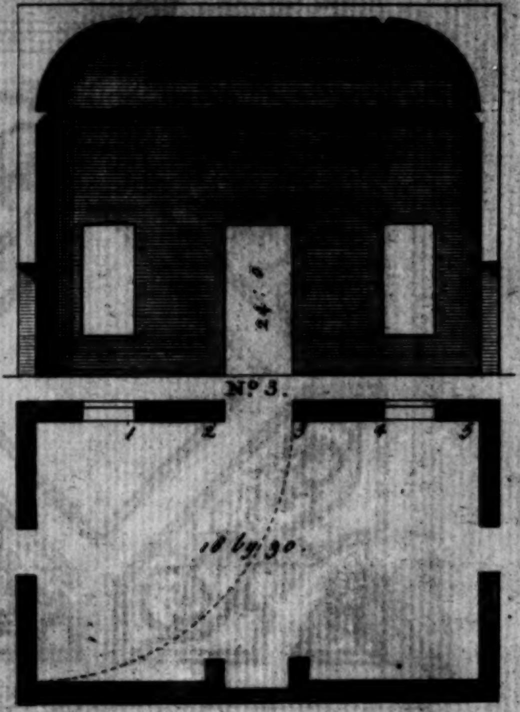
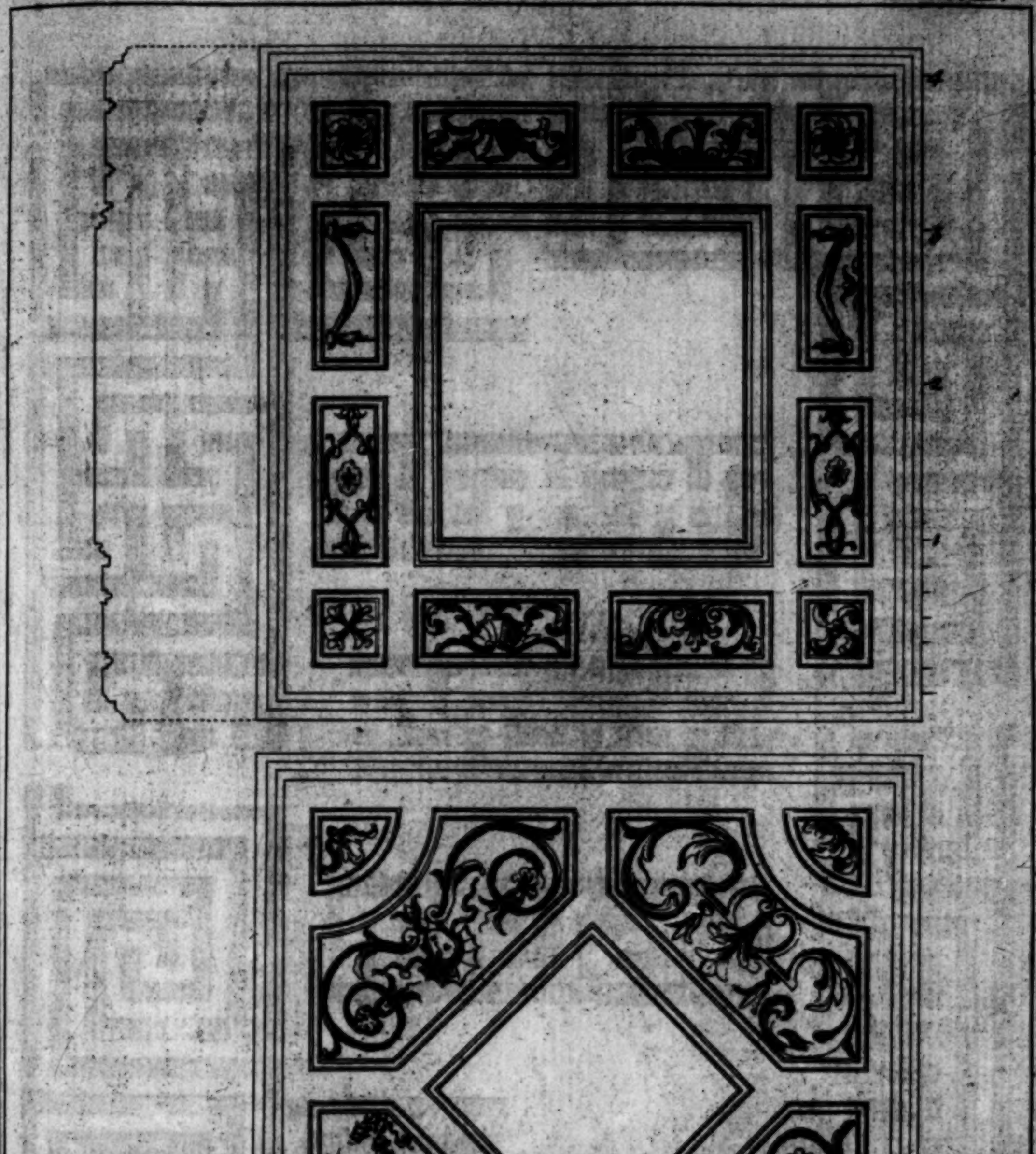

No. 3.

Plate. L.



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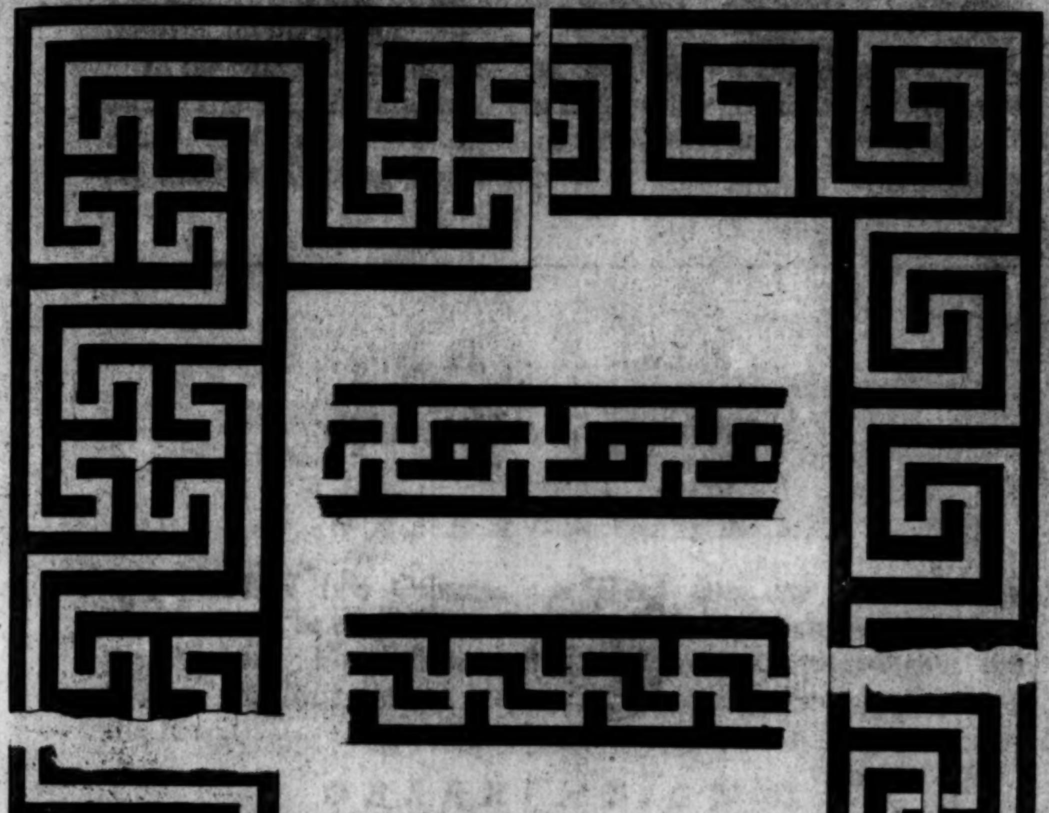

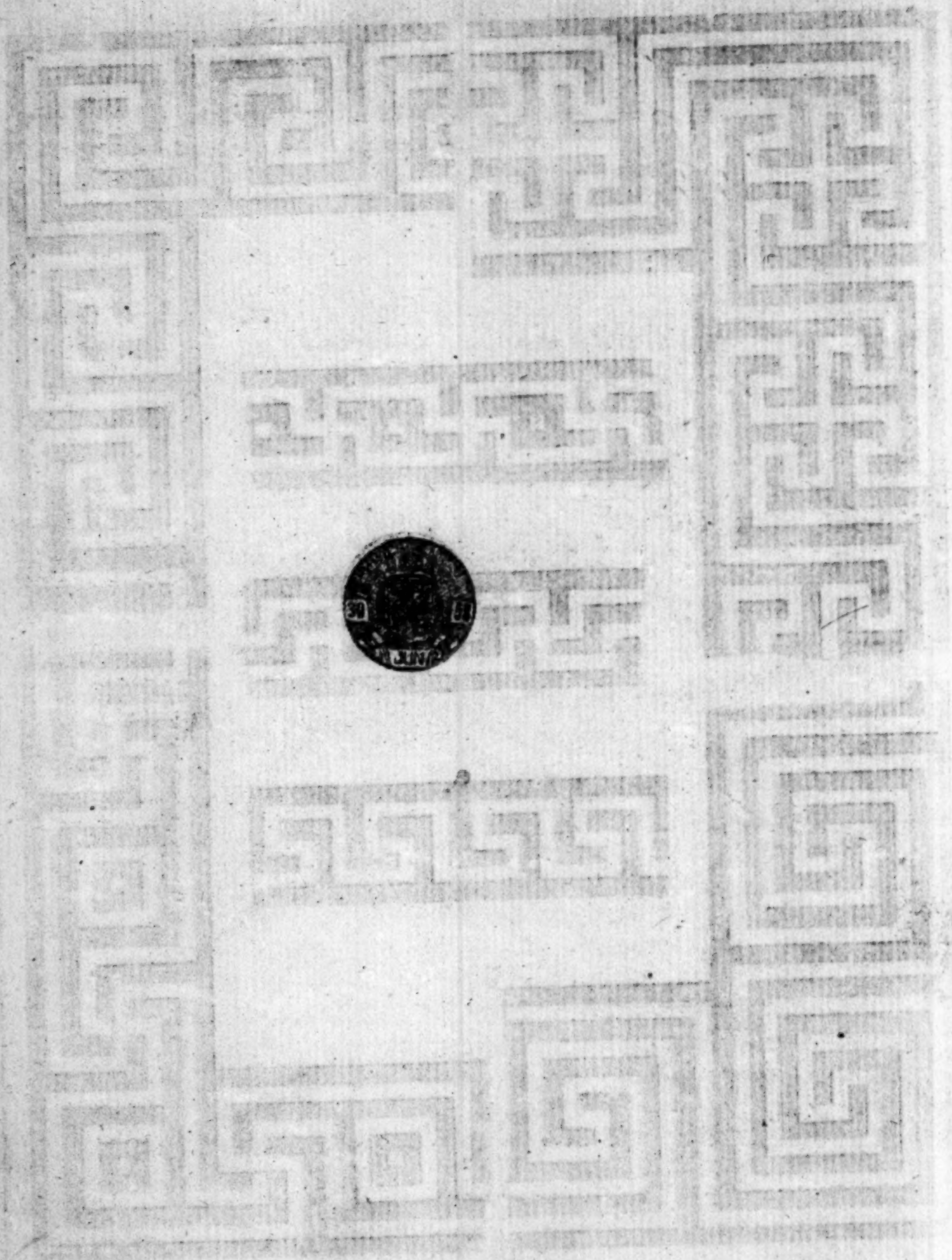

Corner, let them be of any Form, which by a great many has been thought impracticable.

In the Middle is 3 ſmaller Frets, conſiſting of a Diviſion of 7 Parts each, and are all different, but I have not continued the Corners round, tho' theſe are more eaſy; chuſing rather to leave them for the Practice of young Beginners.

CHAP. XXII.

Of the Aſſembling of Orders.

OBSERVATION I.

When two Columns are placed over one another, they muſt be of different Orders; the Stronger always to ſupport the Weaker. For Inſtance, the *Doric* may be placed over the *Tuſcan*; the *Ionic* over the *Doric*; the *Corinthian*, or *Compoſite*, over the *Ionic*.

OBSERVATION II.

The upper Order muſt be always leſs maſſive than the under, agreeable to the Maxim, that the Stronger ought to ſupport the Weaker.

OBSERVATION III.

The Columns ought to ſtand exactly over each other, ſo that their two Axis's may be both found in the ſame perpendicular.

OBSERVATION IV.

The Diſtances between the lower Columns muſt be determined by the Intercolumniations of the Order, that is, without Pedeſtals; and the Diſtances of the upper Columns by the Intercolumniations of the Order with Pedeſtals; taking care, by the way, that the firſt Order be mounted on a pretty high Zocle, or on an Aſcent of ſeveral Steps, to ſerve inſtead of a continued Pedeſtal or Foot.

To the upper Order I give a Pedeſtal, becauſe being confined to the Breadth of the Intercolumniation of the lower Order, its Columns, by this means, are rendered ſmaller; inſomuch, that the Diameter of their Baſe does not exceed that of the Top of the under Columns, which is a Rule that ought not to be diſpenſed withal.

How to find the Module of an Order that is to be placed over another. 'Tis here propoſed, for inſtance, to place the Ionic *Order over the* Doric.

Suppoſe in the firſt Order the Columns be placed at the Diſtance of 5 Modules from each other, in Portico's.

That in the *Ionic* Order with a Pedeſtal, the Columns are 7 Modules 30 Minutes a-part; and that to place this Order upon the *Doric*, you muſt divide the Intercolumniation of the lower Order, into ſeven and a half equal Parts; one of which ſeven and a half will be the Module for raiſing the *Ionic* Order upon the *Doric*. Or (which is a better Rule) the Diameter of the Columns of the upper Order, at the Baſe, muſt be equal to that of the Top of the under Columns.

Of Pilaſters placed one over another.

As Pilaſters are of the ſame bigneſs from top to bottom, one would imagine at firſt Sight, that to preſerve a Regularity, the Pilaſters placed one over another ſhould likewiſe be of the ſame bigneſs; but there are two Reaſons that oblige us to recede from this Rule.

The firſt is, that as the Orders increaſe in Delicacy, they likewiſe increaſe in Height, with regard to their bigneſs: So that were the Module to continue the ſame in the upper and under Pilaſters, the Conſequence would be, that the Orders and Stories would increaſe in Height, in proportion as they riſe over one another, which would be prepoſterous.

The ſecond Reaſon is, that if there ſhould be Columns along with the Pilaſters of the lower Order, the Diameter of the upper

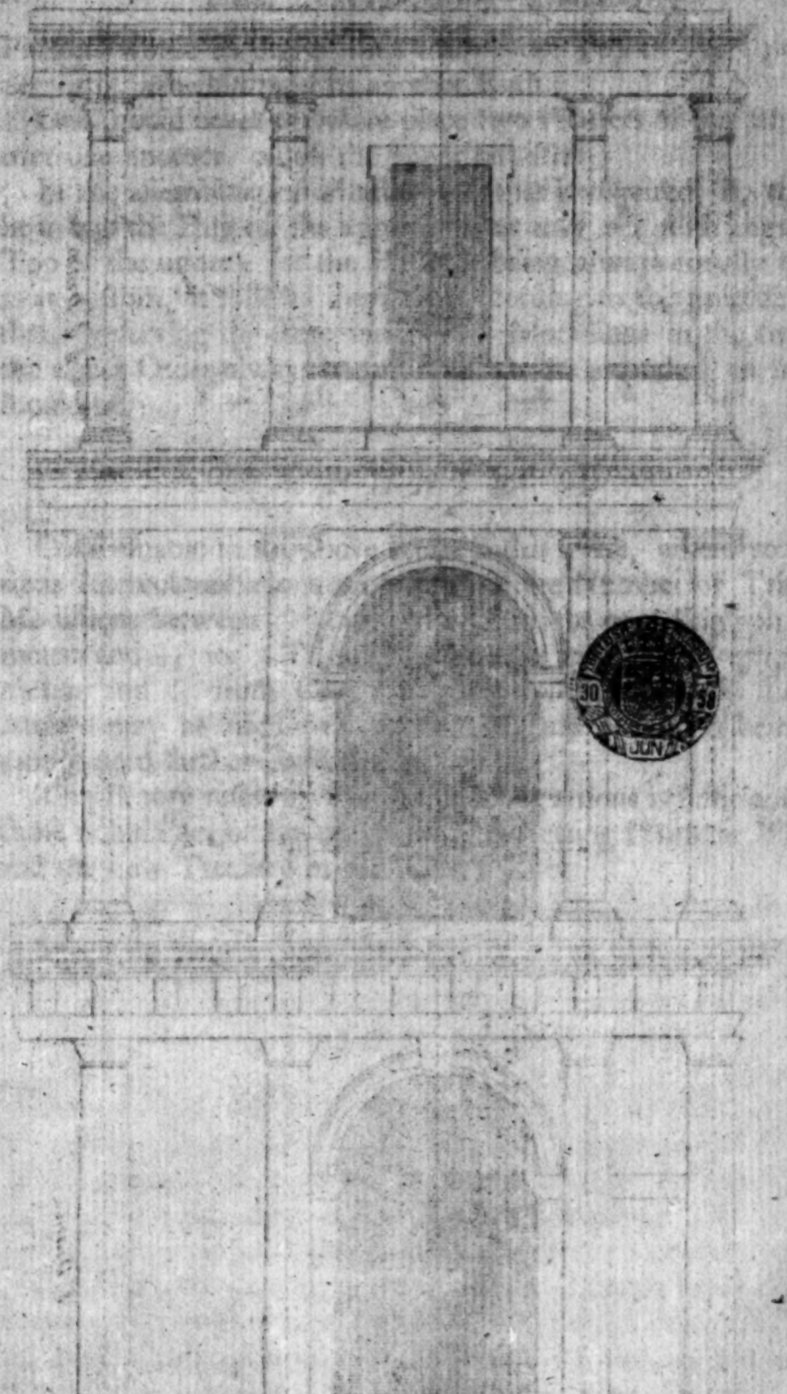

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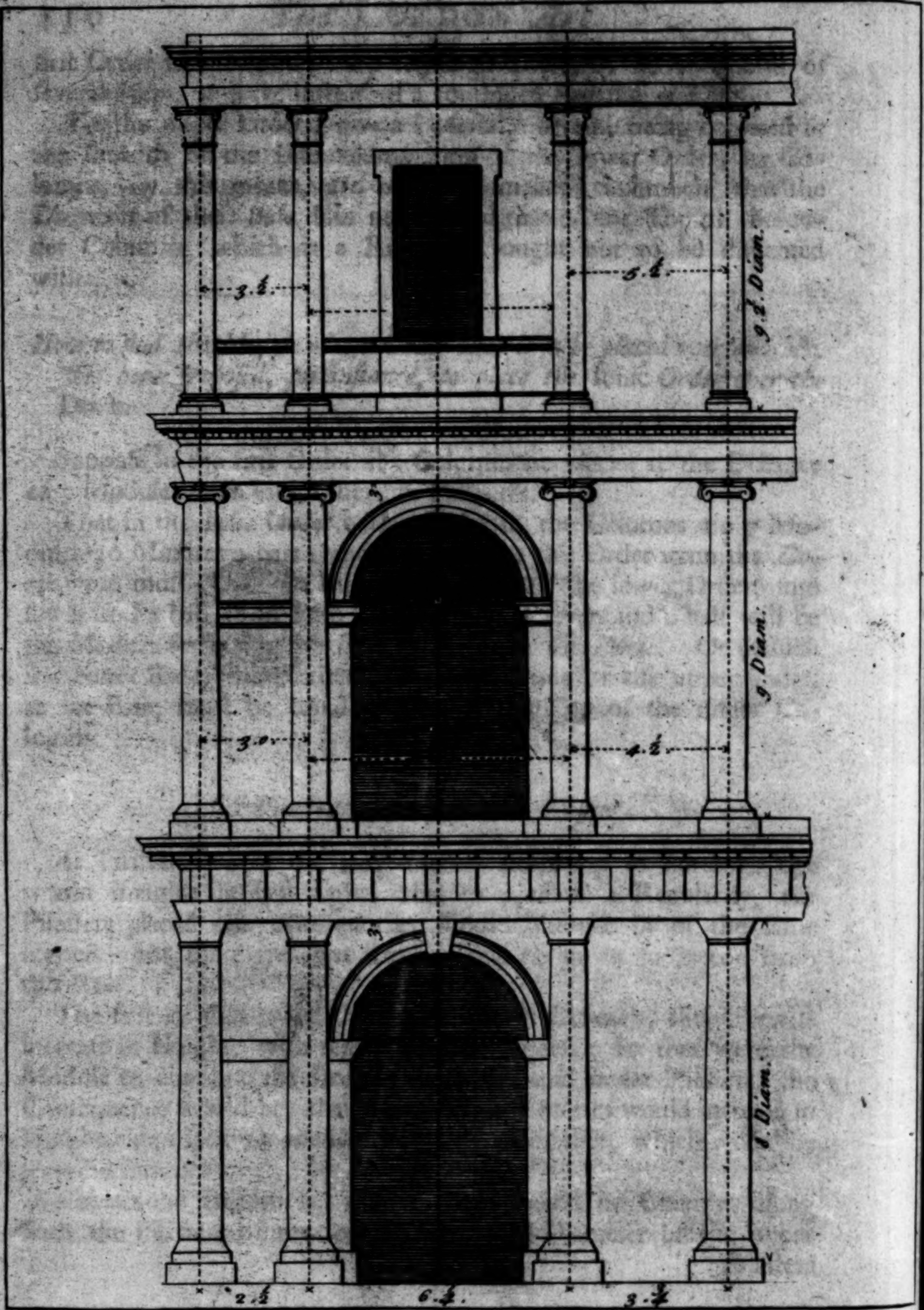
Plate N.



Pilaſters would be bigger than that of the Top of the Columns underneath, which would be another Fault.

One ſhould never therefore place two Pilaſters of the ſame bigneſs over one another, unleſs the upper be *Attic*.

In the aſſembling of Pilaſters, all that is required, is, to examine how big the Baſe of the upper Pilaſter may be, with regard to the Top of the under; for the Pilaſters being always equally big at top as at bottom, it follows inevitably according to the preceding Rules, that, preſerving the ſame number of Modillions in the two Orders, the upper Order always becomes leſs than the under, as in effect it ſhould be.

PLATE N.

Conformable to the above Rules is this Plate, where you have various Intercolumniations according to the Number of Triglyphs or Modillions between; thus in the *Doric* for one Triglyph is 2 Diameters and $\frac{1}{2}$; for 2 Triglyphs 3 and $\frac{3}{4}$; and for 4 Triglyphs 6 Diameters and $\frac{1}{4}$, from Center to Center. Here is alſo ſhewn how Arches may be uſed over each other, and each part being figured cannot need farther Explanation.

The Beauty reſulting from theſe Obſervations is ſufficiently ſeen in thoſe noble Piles of Building, the Banquetting Houſe at *White-Hall*, and the new Treaſury in *St. James's Park.*

THE
London ART *and* METHOD
OF
BUILDING.

PART the Third

Containing a DESCRIPTION *of the ſeveral Sorts of* STAIR-CASES, *and the Formation of all Sorts of* TWISTED RAILS *whatever. Alſo Rules for finding the Pitch and Manner of framing all Sorts of* ROOFS, *whether Square or Bevel. Likewiſe the moſt Neceſſary and General Rules to be obſerved in* BUILDING.—*With the* BUILDERS DICTIONARY; *or, a* COMPLETE EXPLANATION *of the moſt difficult Terms uſed by Workmen concerned in* BUILDING.

CHAP. I.

Of STAIR-CASES.

GREAT Care ought to be taken in placing of the Stair-Caſe in any Building; and therefore Stair-Caſes ought to be deſcribed, and accounted for juſtly, when the Plan of a Building is made; and for want of this, ſometimes unpardonable Errors have been committed: Such as having a little blind Stair-Caſe to a large Houſe, or, on the other Hand, to have a large Spacious Stair-Caſe to a little one. *Palladio*

Plate XXXI

Fig. 1

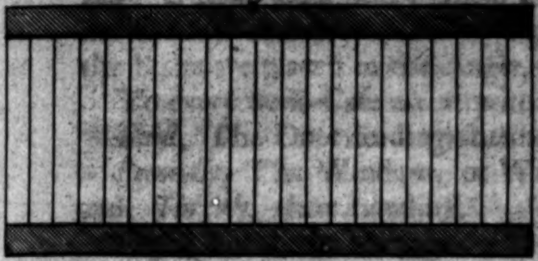


Fig. 2

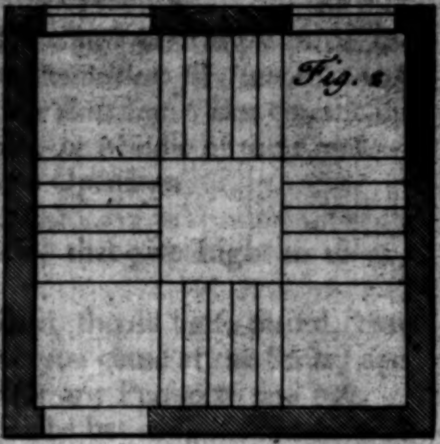


Fig. 3

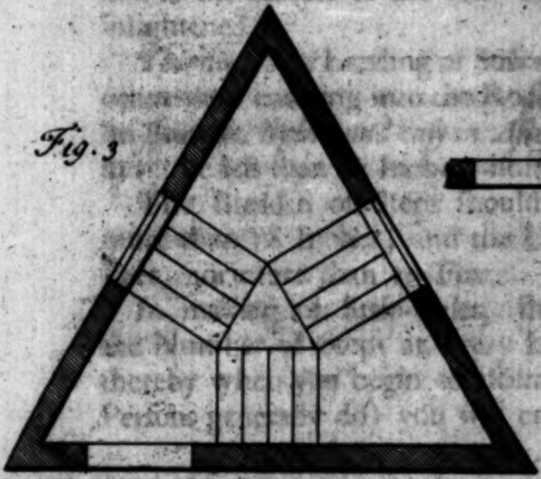


Fig. 4

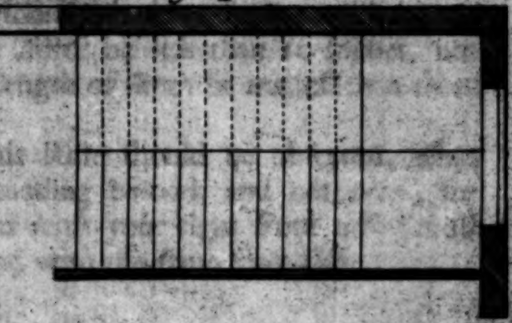


Fig. 5

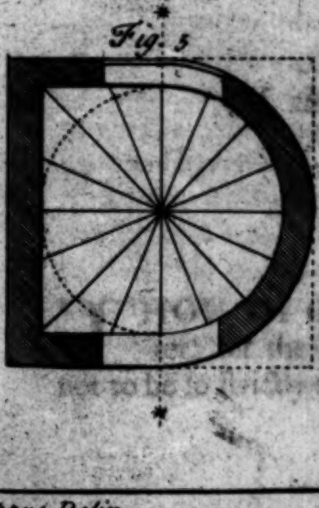
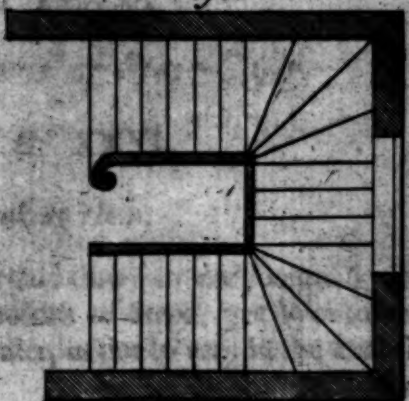


Fig. 6



E. Hoppus Delin.

B. Cole Sculp.

The ART and METHOD of BUILDING.

PART the Third.

Containing a Detail of the [illegible] of the several [illegible] [illegible] of [illegible] Sorts of [illegible] [illegible] the Prices and [illegible] [illegible] of [illegible] [illegible] [illegible] [illegible] [illegible] a complete Explanation of the [illegible] Terms used by Workmen in Building.

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CHAP. I.

Of BUILDINGS.

[illegible] That ought to be taken [illegible] [illegible] Building, and the [illegible] [illegible] ought to be [illegible], and accommodated [illegible] Building [illegible] [illegible] Room [illegible] [illegible] Cost [illegible] [illegible] Spacious [illegible] to a [illegible]

Buildings

Palladio ſays, *in placing Stair-Caſes the utmoſt Care ought to be taken; it being a Difficulty to find a Place convenient for them that will not at the ſame time prejudice the reſt of the Building.* But commonly the Stairs are placed in the Angle, Wing, or Middle of the Front.

To every Stair-Caſe are required three Openings.

Firſt, The Door leading thereto.

Secondly, The Window, or Windows, that give Light to them; and, *Thirdly*, their Landing.

Firſt, The Door leading to a Stair-Caſe, ſhould be ſo placed, that moſt of the Building may be ſeen before you come at the Stairs, and in ſuch a Manner, that it may be eaſy for any Perſon to find out.

Secondly, For the Windows; if there be but one, it muſt be placed in the middle of the Stair-Caſe, that thereby the whole may be inlightened.

Thirdly, The Landing of Stairs ſhould be large and ſpacious, for the convenient entering into the Rooms: In a Word, Stair-Caſes, ſhould be *ſpacious, light, and eaſy in Aſcent*: The Height of large Steps muſt never be leſs than ſix Inches, nor more than ſeven Inches and half.

The Breadth of Steps ſhould never be leſs than 10 Inches, nor more than 18 Inches; and the Length of them be not leſs than three Feet, nor more than 12 Feet.

In making of Stair-Caſes, this Rule ſhould be obſerved, That the Number of Steps at every Landing be odd, and not even; for thereby when you begin to aſcend with your right Foot firſt (as all Perſons generally do) you will end with the ſame Foot alſo.

CHAP. II.

Of the ſeveral Sorts of Stair-Caſes.

PLATE XXXI.

Firſt of making them.

THOUGH there are Rules laid down in the foregoing Chapter, for the Height and Breadth of Steps; yet Workmen are not to be ſo ſtrictly tied to thoſe Rules, as not to vary in the leaſt from them: For they muſt ſtill obſerve to make all the Steps of the ſame Stair-Caſe of an equal Height and Breadth: To do which, they muſt firſt conſider the Height of the Room, as alſo the Width, or Compaſs, they have to carry up the Stairs in.

Then to find the Height of each particular Step, they ought firſt to propoſe the Height of each Step, and by that propoſed Height divide the whole Height of the Room; which done, the Quotient will ſhew the Number of Steps: But if the Diviſion fall not out exact, but that there be a Remainder; then (in this Caſe) take the Quotient (not regarding the Remainder) for the Number of Steps, and by that Number divide the whole Height of the Room; ſo the Quotient ſhall give you the exact Height of each Step.

EXAMPLE.

Suppoſe the whole Height of the Room be 9 Feet 3 Inches, and ſuppoſe you deſigned to make each Step 6 Inches high, turn the whole Height of the Room into Inches, and divide thoſe Inches by 6, the Quotient will be 18, and the Remainder 3; therefore take 18 for the Number of Steps, and by it divide 3, and the Quotient will be $6\frac{3}{18}$ Inches or $6\frac{1}{6}$ Inches, which muſt be the exact Height of each Step.

Then to find the Breadth of each Step, divide the Space or Compaſs (that you have to carry them up in) by the Number of Steps, the Quotient will ſhew you the Breadth of each Step.

The ſeveral KINDS *of Stairs.*

There are many Kinds of Stair-Caſes; for in ſome the Steps are made ſtrait; in others, winding; in others, mixt of both. Of ſtrait Stairs, ſome fly directly forward; others are Square; others Triangular; others are called *French* Flights, or Winding Stairs (which in general are called Spiral or Cockle-Stairs) of which ſome are Square; ſome Circular, or Round; and ſome Elliptical, or Oval; and theſe again are various; for ſome wind about a Solid; others, about an Open-Newel. Stairs mixt of ſtrait and winding Steps are alſo of various Kinds; ſome are called Doglegg'd; ſome there are, that wind about a Solid-Newel, and others that fly about a Square Open-Newel.

There might be a larger Deſcription given of every one of theſe Kinds of Stair-Caſes; but if theſe are well underſtood, it will be eaſy to compoſe other Sorts from the following Figures.

Of Strait-Stairs. *Fig.* 1. *PLATE* XXXI.

Theſe are ſuch as always fly, and never wind, and are by ſome called Flyers; going directly from one Floor to another, without turning to the Right or the Left.

Square-Flyers. Fig. 2.

Theſe fly round the Sides of a ſquare Newel, either ſolid or open, and are of two Kinds, and at every Corner of the Newel there is a ſquare Foot-pace that takes up a ¼ of a Circle.

Triangular-Flyers. Fig. 3.

Theſe fly round by the Side of a Triangular Newel, either ſolid or open, and are of two Kinds. At each Corner of the Newel is a Trapezial Foot-pace, that take up ⅓ of a Circle; the Length of the Stairs is at right Angles with the Side of the Newel.

French-Flyers. Fig. 4.

Theſe kind of Stairs, firſt fly directly forward, till they come within the Length of a Step of the Wall, and then they have a Quarter-pace; from which you immediately, without any Steps between, aſcend to another Quarter-pace; and from this ſecond Quarter-pace the Stairs fly directly back again, parallel to the firſt Flight.

Winding-Stairs. Fig. 5.

Theſe are ſuch as always wind and never fly: There are many Kinds of theſe Stairs that wind round either a Circle, an Oval, a Square, or an Equilateral Triangle; and of each of theſe, ſome wind round a ſolid Newel, and others round an open or hollow Newel.

Mixt-Stairs. Fig. 6.

Theſe are ſuch as do both fly and wind; and therefore are by ſome called by the general Name of Flyers and Winders: Here is alſo ſhewn a twiſted Rail at the beginning of the firſt Flight, and the manner of forming it; ſee the next Chapter.

CHAP.

CHAP. III.

To form the Arch, or Mould, to the Hand Rail of a Pair of Stairs, which is to be circular, Part of the two firſt Steps, ſo as to make it ſtand perpendicular over the Ground, or Plan, and the Manner of Squaring the Rail without ſetting it up in its Poſition.

PLATE XXXII. *Fig.* 1.

HAVING concluded on the Breadth, or Tread of the Steps, and Bigneſs of the Rail intended, with the Projections and Form of the Mouldings in *Fig.* 2, continue out the Front of the ſecond Step between A and B; and on it deſcribe a Circle, which ſhall touch the Inſide of the Rail, and whoſe Diameter is equal to the Breadth of two Steps; which divide into eight equal Parts. Then on the ſame Center deſcribe a Circle equal to the Bigneſs of the Rail, *Fig.* 2; alſo another Circle as much larger as the Projection of the Mouldings, as *a*, *b*, *c*, *d*.

Draw the Diagonal Line *ef*, and deſcribe the Part of a Circle, *ag*, which divide into eight equal Parts, and continuing them from the Center *e*, to the Line *thiklmnoa*, you have the diminiſhing Scale for the Formation of the Scroll.

Next, ſetting off, within the great Circle, the reſpective Diſtances *fh*, *fi*, *fk*, *fl*, on each eighth Part of the Circle, and taking the Diſtance from the Center C to *f*, find the Center in the Eye, or Block, as at *f*, for the firſt eighth Part of the Scroll, then the Diſtance C*h* for the next eighth, and ſo on, till you have the Scroll coming into the Block at one Revolution of a Circle.

Here obſerve, that the inſide Scroll, though drawn from the ſame Centers, muſt not meet on the eighth Parts of the great Circle but on a Line drawn to each reſpective Center.

If you would have a Scroll to make a greater Revolution, as *Fig.* 3. deſcribe a Circle whoſe Diameter is equal to 3 Steps, and divide the diminiſhing Scale into 12 Parts, and ſtriking one eighth of the great Circle at a time, as before you have the Scroll, at one Revolution and half of a Circle.

But requiring it ſtill larger, deſcribe a Circle whoſe diameter is equal to the Breadth of 4 Steps, and dividing the diminiſhing Scale into 16 Parts, you have the Scroll at two Revolutions of a Circle.

This I think is plain enough by Inſpection.

To ſquare the Rail.

A Mould muſt be traced out to find a Sweep, which if applied on the Rake, will anſwer to the Ground of *r*, *s*, *p*, *q*, as *Fig.* 4; but obſerve, there will be Wood required extraordinary, both on the Top of the Rail, as at *a*, *b*, in *Fig.* 5, and alſo at the Bottom, as *c*, *d*. For the diſcovering of how much it muſt be, take notice, where the Twiſt begins in the Plan, *Fig.* 1, as *r*, *s*; and alſo that at *k* the Twiſt ends. Therefore let the Diſtance from *r* to *k* be divided into a Number of equal Parts, and transfer them on ſome Line, as from *r* to *k*, *Fig.* 6; then take the Diſtance *r*, *t*, and apply it to the Pitch-board (which is the Riſe and Tread of each Step) *Fig.* 7, as from *a* to *b*, and raiſe the Perpendicular *b*, *c*; then in *Fig.* 6, from the End of the Line *r*, make the Triangle *r*, *e*, *d*, equal in all reſpects to that of *a*, *b*, *c*, *Fig.* 7.

Laſtly, Dividing from *e*, to *d*, and from *e*, to *k*, into eight equal Parts, and drawing ſtrait Lines from each Diviſion, you will form a Curve, ſhewing how much Wood is required on the Back of the Rail, as *p*, *q*, which transfer from *b* to *a*, in *Fig.* 5, and there deſcribe the Bigneſs of the Rail, which ſhews the Deficiency of Wood as abovementioned.

The other Part of the Twiſt from *p* to *k*, as alſo the Block (which is level) is cut out of a parallel Piece.

For tracing the Mould, *Fig.* 4. Take (in *Fig.* 1.) from *r*, to *t*, and apply it to the Pitch-board, *Fig.* 7, from *a* to *b*, it gives the Hypothenuſe *a c*, which transfer to *Fig.* 4, from *a*, to *b*; alſo in *Fig.* 1, take from *p* to *q*, and apply it to *Fig.* 7; from *a* to *d*, it gives *a*, *e*, which place in *Fig.* 4, from *c*, to *d*; which done, trace out the Raking Mould D, by the Interſection of Lines ſquared from the Diviſions of the Plan *r*, *p*, and *s*, *q*, *Fig.* 1, which is eaſily comprehended by Inſpection, and when elevated to the proper Pitch, will ſtand exactly over the ſaid Plan.

So that this Mould being apply'd on the Top of the Rail, and the Mould, *Fig.* 6, on the Inſide thereof, in their reſpective Places, and marking them by, and cutting away the ſuperfluous Wood, you have two Sides of the Rail ſquared, and the other two are found by gauging from them.

I muſt confeſs, for this Method of forming twiſt Rails, I have had my Eye upon, and am obliged to, my Ingenious Friend, Mr. *Francis Price*, in his *Treatiſe on Carpentry*, lately publiſhed; though on comparing them, you will not find them alike.

This Method of forming the Raking Mould, will ſerve for all twiſt Rails whatſoever, with due Application, as ſhall be ſhewn in another Example of a Stair-Caſe, having a circular Well-hole.

Fig. 8. *Is the Plan of a circular Rail having* 16 *Steps in the whole Circumference; but here it is propoſed to find the Raking Mould to a fourth Part thereof, or* 4 *Steps, it being to a ſmall Scale.*

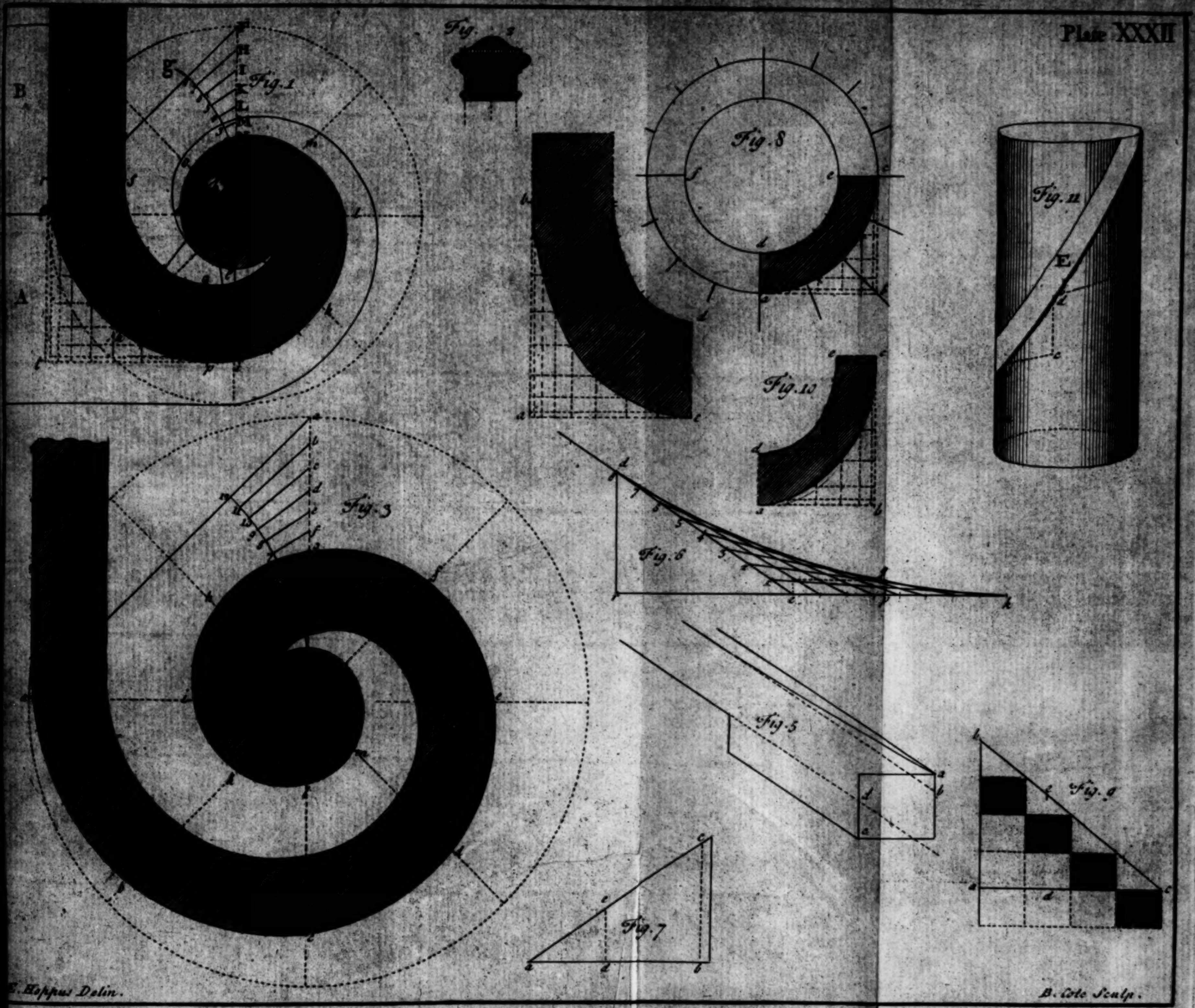
The Plan being laid down, as *a c d e*, *Fig.* 8, divide the outer Circle into a Number of equal Parts, ſo as to transfer them on ſome Line, as *a c*, *Fig.* 9; and ſetting up the Riſe of 4 Steps, as *a b*, gives the Pitch-board, due to them all. Then taking *b c*, in *Fig.* 8, apply'd to the Pitch-board, *Fig.* 9, from *c* to *d*, it gives *c e*, which transfer to *Fig.* 10, from *b*, to *c*: Alſo from *Fig.* 8, take *a d*, placed in *Fig.* 9, from *c* to *g*, gives *c f*, which transfer to *Fig.* 10, from *a* to *d*; and there tracing, as before taught, you will form the Raking Mould required.

Some able Workmen have another Method of forming this Rail.

Firſt, They make a Cylinder, equal to the whole Well-hole *f, e*, in *Fig.* 8, or part thereof, either ſolid (if the Well-hole be ſmall) or (if large) by faſtening Boards together upright in the exact Form of the Plan.

Then they proceed to ſet on the ſaid Cylinder, as *Fig.* 11, the Height and Breadth of each Step, as *a*, *b*, *c*, *d*, *e*, *f*, *&c.* and to the extreme Points, *b*, *d*, *f*, they bend round ſeveral thin Pieces of the Breadth of *c*, *f*, in *Fig.* 9, and being glued, or otherwiſe faſtened together, till they make the Thickneſs of the Rail, as E. I ſay theſe, when taken off from the Cylinder, will be the Rail, and exactly ſquared to the right Twiſt.

Plate XXXII



E. Hoppus Delin.

B. Cole Sculp.

Fig. 1.

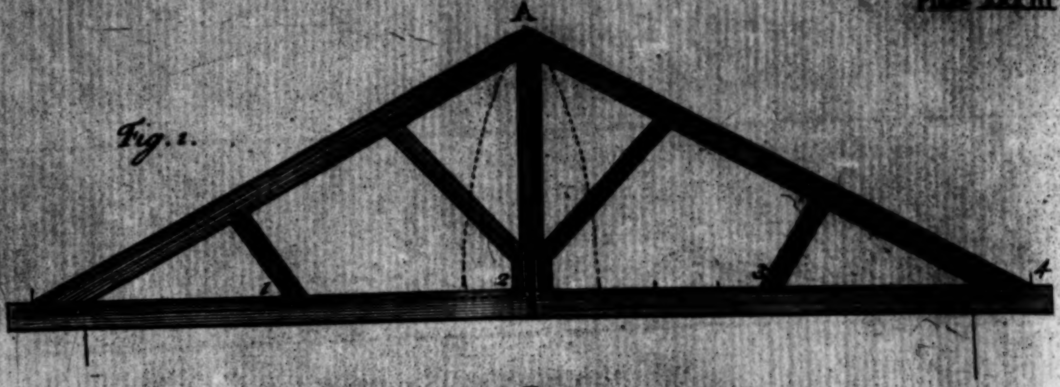


Fig. 2.

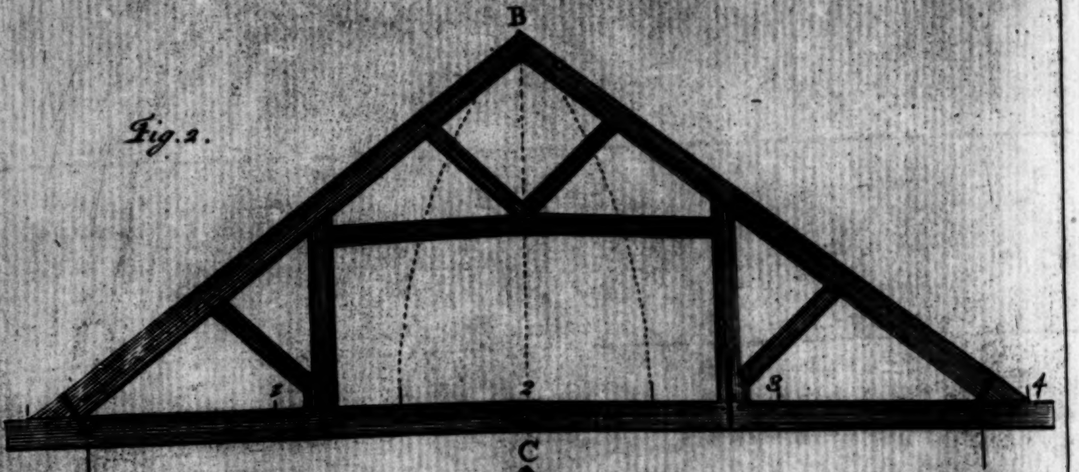
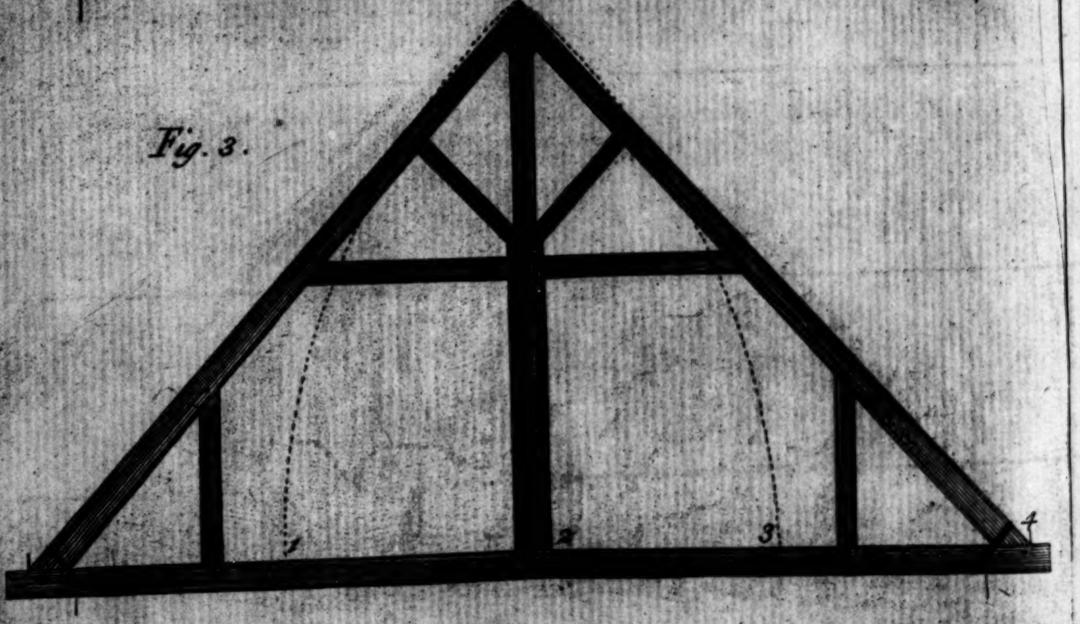


Fig. 3.



E. Hoppus. Delin.

This is a very ſafe and ſure Method, though not very frequently made uſe of.

Either of theſe Ways will ſerve, ſhould the Well-hole be an Ellipſis, or any other Figure for its Plan.

CHAP. IV.

Of ROOFS.

PLATE XXXIII.

THE firſt Thing to be conſidered in Roofs, is the covering wherewith the Building is to be incloſed, as Lead, Pantiles, Slates, or Plain-Tiles; they each requiring more Pitch, or Slope, than the other, for which obſerve the following Rules.

Fig. 1. *Is a proper Pitch for covering with Lead.*——To find the perpendicular Height, divide the Breadth of the Building into 4 equal Parts, and ſubdivide the Part between 1 and 2, or 2 and 3, alſo into 4 equal Parts.

Then take half the Building, and one of thoſe Parts for the Length of the Rafter, which ſaid Length being uſed as a Radius, deſcribe the Arches interſecting in A, which gives the perpendicular Height.

Fig. 2. *Is a proper Pitch for covering with Pan-Tiles and Slate.*—To find the perpendicular Height, divide the Breadth of the Building alſo into 4 Parts: Again, divide one of the middle Parts into 2, and take half the Building and one of thoſe Parts for the Length of the Rafter, which will interſect in B the perpendicular Height.

Fig. 3. *Is a proper Pitch for covering with Plain-Tiles.*——To find the perpendicular Height, divide the Breadth of the Building alſo into 4 Parts, and take 3 of theſe Parts for the Length of the Rafter, which will interſect in C the perpendicular Height.

This is called true (or common) Pitch, it being moſt in Uſe.

In theſe three *Examples* is alſo ſhewn the Manner of framing Timbers on the Beams, which ſerve to truſs and ſtrengthen the principal Rafters, which ought always to be carefully obſerved.

But to render this Treatiſe more uſeful, I have in the following Plates added a large Variety of Truſs-Roofs.

PLATE XXXIV.

Fig. 1. Is a flat Roof, having but $\frac{1}{8}$ of the Span for its perpendicular Height, and muſt be covered with Lead, and the Rafters thus joggled into the Beams (which are made Camber) will be very ſubſtantial.

Fig. 2. Is another flat Roof, riſing ſomewhat higher, the Perpendicular being $\frac{1}{6}$ of the Span, and with theſe Truſſes will be exceeding ſtrong; alſo here is ſhewn how Drips may be made to walk on, as A.

Fig. 3. Is a Roof partly flat, of a different Kind to all the others; it riſes $\frac{1}{4}$ of the Span, and by ſcarfing, or piecing the Beams together in this Manner, will be capable of ſpanning any Breadth whatſoever; and if Room ſhould be wanting in the Middle of the Roof, the Braces B and C may be omitted.

PLATE O.

☞ *The Reader may take Notice, that the* Engraver, *by miſtake, has made the Grain of the Timber in the Plates* O *and* P *to run the wrong Way.*

On this Plate you have 3 more different Deſigns of Roofs. The firſt is for a Curve Ceiling; and although the Beam or Tye be hereby interrupted, yet by this Manner of a Truſs, this Roof will be exceeding ſtrong.

The ſecond is a Roof ſo formed, that if the foregoing Pitch for Plain Tiles is judged to be too lofty, then by this Method of having a Gutter in the Middle, one third Part of the Height of the Roof is taken off, as is plain by the Diviſions on the Plate; and theſe are called M Roofs, from their likeneſs of an M.

The third Form is a Roof that ſpands or extends beyond the Walls: And of this Sort are the Roofs of *Covent-Garden*, and *Horſley-Down* Churches, which are very proper, by reaſon they give a Covering,

Plate XXXIIII

Fig. 1

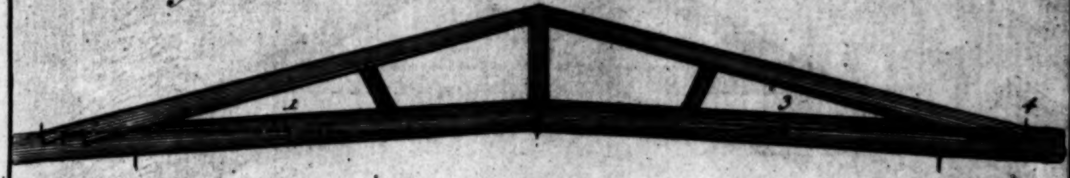


Fig. 2

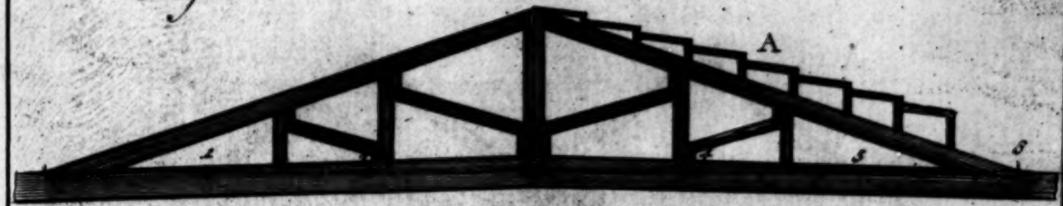
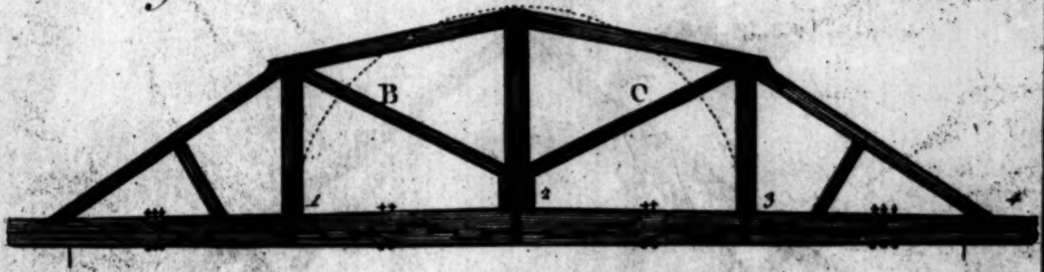
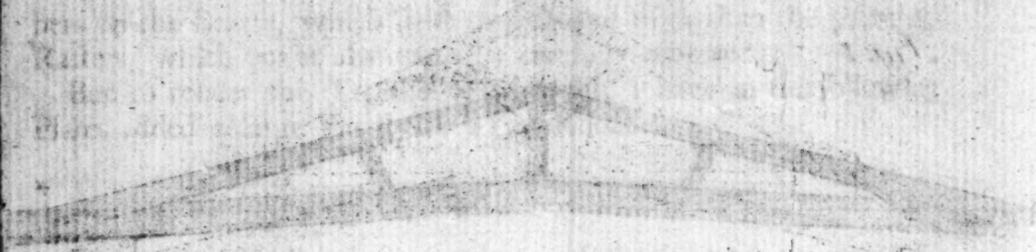


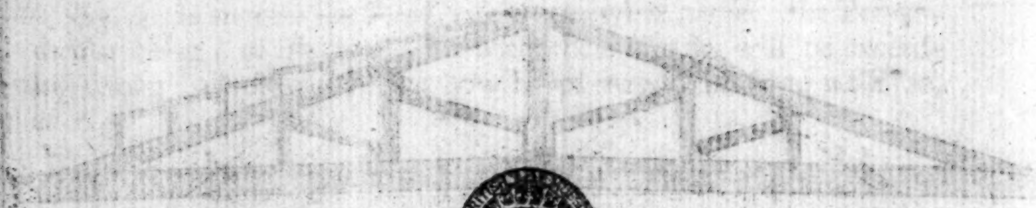
Fig. 3



E. Hoppus Delin. B: Cole Sculp.

Pl. 22.





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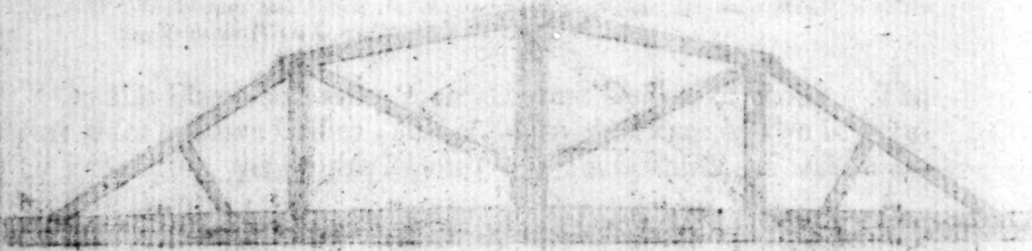
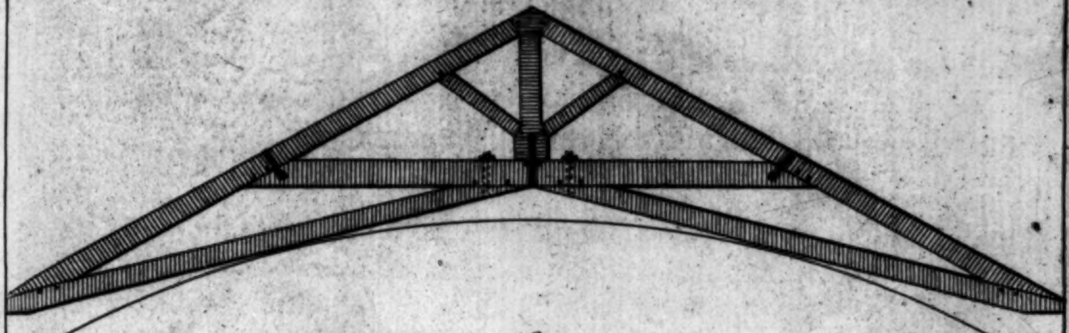
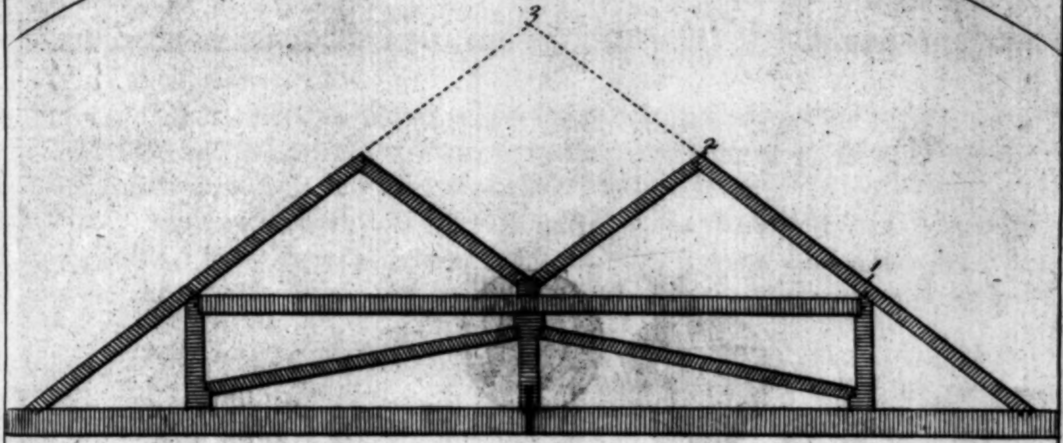


Plate. O.





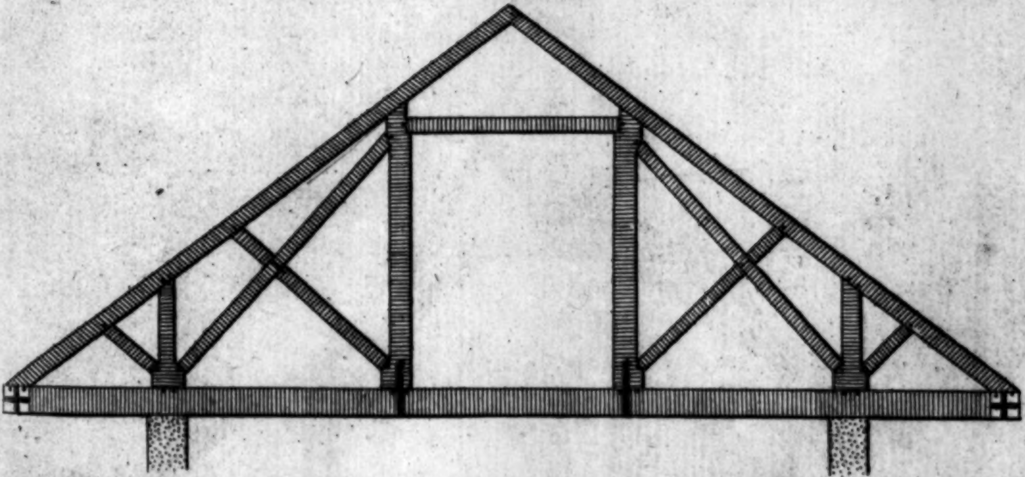
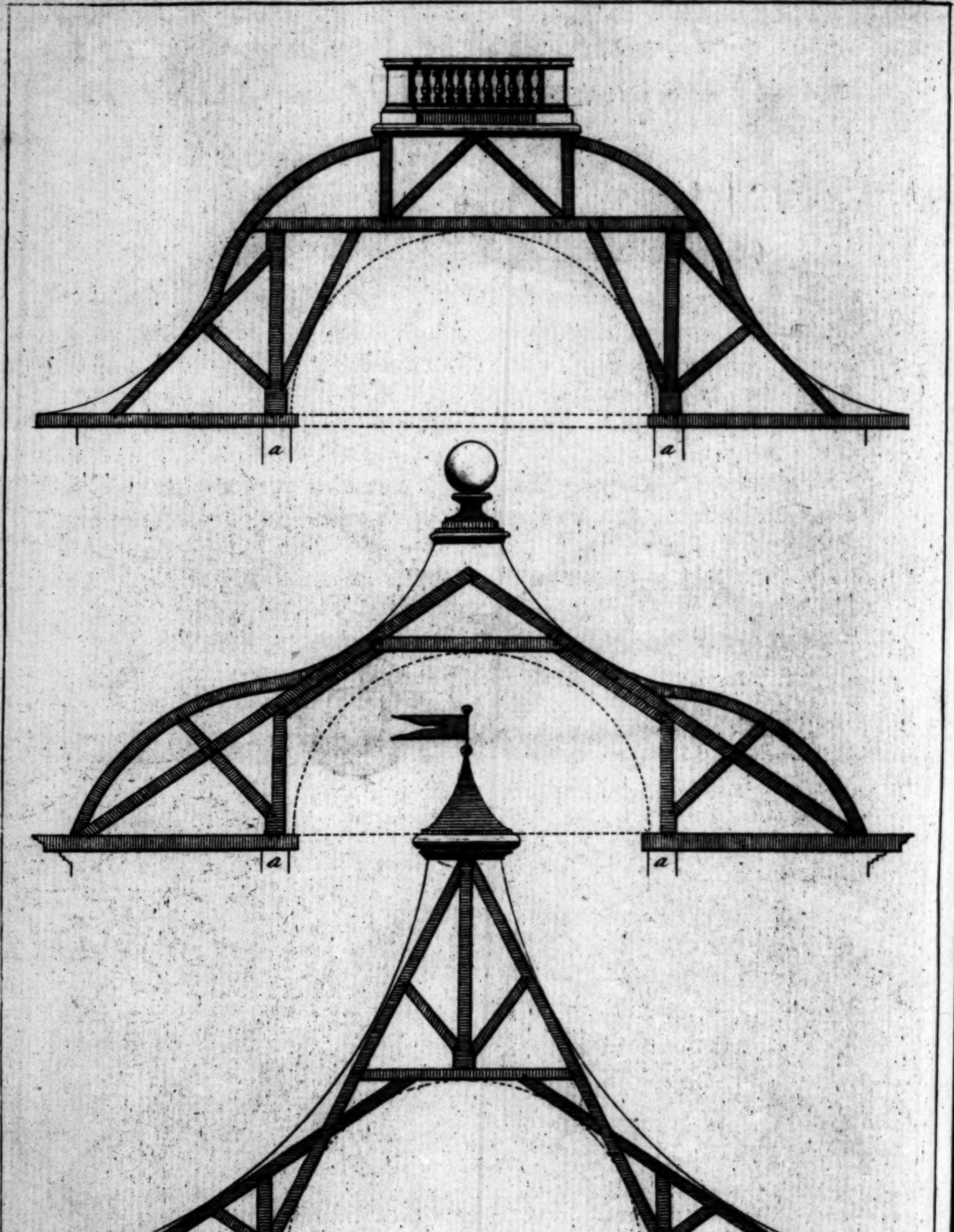


Plate. P.



Covering, or Shelter to the People under the Eaves, as well as to the Building itſelf.

N. B. Theſe Truſſes are only for the principal Rafters, which are commonly placed about 9 or 10 Feet aſunder.

PLATE P.

As Variety is always moſt pleaſing, here is ſhewn 3 different Forms of curvilineal Roofs, which are much in uſe for Summer-Houſes, Temples, *&c.* The firſt of them hath a Balluſtrade round a flat Part at the Top.

The ſecond is terminated by a Ball, and is a reverſed Ogee to the other.

The third is a Concave Roof, which may be properly uſed for a Square, Circular, or Octangular Plan, or indeed any kind of regular Polygon.

In theſe Roofs you may obſerve that the Beam is cut off, as in the laſt Plate; hereby making a Semicircular Ceiling in each; and the Ends of the Beams are to be ſupported by Columns, as at *a*, *a*, *a*, *a*.

CHAP. V.

Of the HIP-ROOF.

PLATE XXXIV. *Fig.* 1.

INSTRUCTIONS to find the Length and Back of the Hip-Rafter, ſo as it may anſwer the Side and the End of the perpendicular Line of the Gable-End, the two Skirts, the Side of the Roof, whether in Plano, or lying in Ledgment, with the Hip and Gable-End; the Diagonal and perpendicular Lines being laid down proportional to any Breadth or Length.

EXAMPLE. Fig. 1.

Let A B C D be the Sides and Ends of the ſaid Roof, one End to be hipped, and the other a Gable-End; draw the Lines A B C D the Breadth and Length of that Roof; then draw the Gable-End A H B, whoſe Sides A H, and B H, are each equal in Length to ¾ of the Width of the Houſe, or true Pitch; then draw the perpendicular Line O H, the Height of the Gable-End, which Line is of general Uſe to level the Ridge of all Roofs; and if the other End be hipped, as in the Deſign C D E, then it ſerves to find the Length and Back of the Hip, ſo that it may anſwer both Sides and Ends of the Roof, always obſerving that the Middle of the Breadth of the Houſe is as O V; then draw the Line S W X F through the Center Q, which will make right Angles to the Line O V, both in Square and Bevel Houſes; and the Diſtance W S and X F are each equal to the Length of the Rafters A H or B H; then extend the Line A B on both Sides to T and I, and to the ſame Length alſo, ſo will I F, and S T, make the Length of the Ridge Q O, and S C and D F, the two Skirts.

To find the Length of the Hip.

Draw the Diagonal Lines C Q and Q D, over which the Hip is to hang when in its due Place; then take the perpendicular Line O H, and place it from the point Q to the point R R, the one perpendicular to the Diagonal, or Baſe Line, C Q, and the other to Q D, ſo is Q R and Q R the Pitch of the Hip equal to the Gable-End O H, and when erected, will hang perpendicular to the point Q; then take the Lines C R, and R D, placing them from C to E, and from D to E, and it gives the Length of the Hip C E D; and when laid to their Pitch will all meet perpendicular to the Point I.

To find the Back of the Hip, ſo that it may anſwer both Sides and Ends of the Roof, whether Square or Bevel.

Lay a Ruler from the Point W, to the point V, and from the point V to X, and mark where it cuts the Diagonal Lines C Q, and Q D, at *z z*; then ſet one Foot of the Compaſſes in the Point *z*, extend the other Foot to the neareſt Diſtance on the Hip Lines C R, and D R, and with that Diſtance mark the Points G G, upon the ſame Diagonal Lines; then draw the pricked Lines W G V, and V G X, which makes the Back of the Hip for the two Corners of that Roof.

CHAP. VI.

Of the Roof Bevel at one End, and Square at the other; the Gable-End Square, the Bevel-End Hipt.

PLATE XXXIV. *Fig.* 2.

SUPPOSE the Breadth of the Houſe be 20 Feet, the Length more on one Side than the other, as in the Deſign CNEP; then draw the Gable-End CAE, whoſe Sides from C to A, and from A to E, is $\frac{3}{4}$ of the Breadth of the Houſe, or is the Length of the principal Rafters; then draw the perpendicular AD, the Height of the Roof from the Floor; and if Knee'd, then from the Top of the Knee.

The Sides of the Roof BGFQ, to be drawn as is deſcribed in the foregoing Deſign.

Divide the Breadth of the Houſe into two equal Parts, and draw the Line DLR; then take the Diſtance LV, which is the half Breadth of the Houſe, and make it parallel to NRP, as HLK, and L will be the Point whoſe Perpendiculars IL will meet the principal Rafters and Hips.

To find the Length of each Hip diſtinct one from the other; and firſt of the longeſt Hips.

Draw the Diagonal Line PL, and take the Height of the Gable-End DA, and place it perpendicular to PL at I, ſo have you the Height of the Roof perpendicular from PL equal to DA the Gable-End; and the Line PI will be the Length of the Hip-Rafter, which will be equal to PQ, the Skirt for that Side of the Hip, and SP the Side of that Hipt End.

To find the Back of the longeſt Hip I P.

Lay the Ruler from the point K to R, and mark where it cuts the Diagonal Line at M; then ſet one Foot of the Compaſſes in the point M, and extend the other Foot till it touches the Line I P at the neareſt Diſtance; then make it touch the Diagonal Line at O; then draw the Lines K O, O R, which is the Back of the Hip for that Corner of the Roof.

To find the ſhorteſt Hip I N.

Is all the ſame as to find the Length of the longeſt Hip; and the Backing of the ſhorteſt Hip, is alſo found by the ſame Method, as is already taught, and needs no other Explanation.

N. B. This Rule ſerves for all Bevel Roofs, let the Pitch or Slope be what it will.

CHAP. VII.

Of a Roof Bevel *at both Ends, and broader at one End than the other.*

PLATE XXXV.

SUPPOSE A B C D the Length and Breadth of the Houſe, and L M N the Length of the Rafters, or Pitch between the wideſt and narroweſt End, about the Middle of the Houſe, to ſtand over the pricked Line S O. K, K, are the Points of the two Hip Ends, which, when brought to their due Place, will be perpendicular to P and P, and will meet the Sides F H, G I over the ſame Points P and P. The Points X X X X are the Perpendiculars and Length of the Hips from A B C D; the Points W W W W ſhew the Back of the Hips, or Hip-Mould due to each Corner; and V V V V are the Points to find out the Points W W W W for each Back. R T, Z Z are the Lines repreſenting half the Breadth of the Houſe parallel to each End; and Y Y repreſents the Middle of the Houſe.

Notwithſtanding the Bevel-Ends, you may place the Beams for your principal Rafters to ſtand on ſquare, or ſo near a Square as may be, or between both, as from the Ends of the prick'd Lines F G, H I, bringing the Out-ſide of them ſtrait under P, which will be more handſome for the Houſe within ſide, although it bevels outward.

CHAP. VIII.

Of Architectonical Axioms *and* Analogies.

I. *Of* DOORS.

THAT the Height of all Doors be double their Breadth. That Doors in general be proportionable to the Magnitude of the Rooms.

That the Breadth of inner Doors be never leſs than two Feet and a half, nor more than ſix Feet. That the Doors of the ſecond and third Stories be placed exactly over the Doors of the firſt. That an Arch of Brick or Stone be turned over every Door to diſcharge the Weight that preſſes upon them, which oftentimes ruins the Structure.

II. *Of* WINDOWS.

That the Bigneſs and Number of Windows be proportional to the Rooms they are to enlighten, and their Height double their Breadth, with the Addition of $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$ Part, as ſhall be found neceſſary. That the Height of the Windows in the ſecond Story be $\frac{1}{12}$ of the firſt, and the Height of the Attic, or third Story $\frac{3}{4}$ of the

Plate XXXV.

Fig. 1.

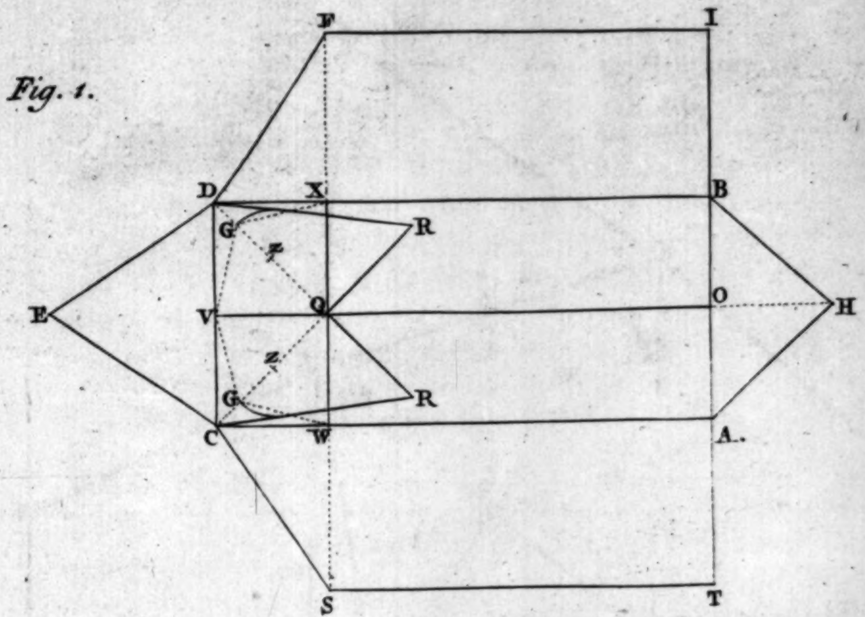


Fig. 2.

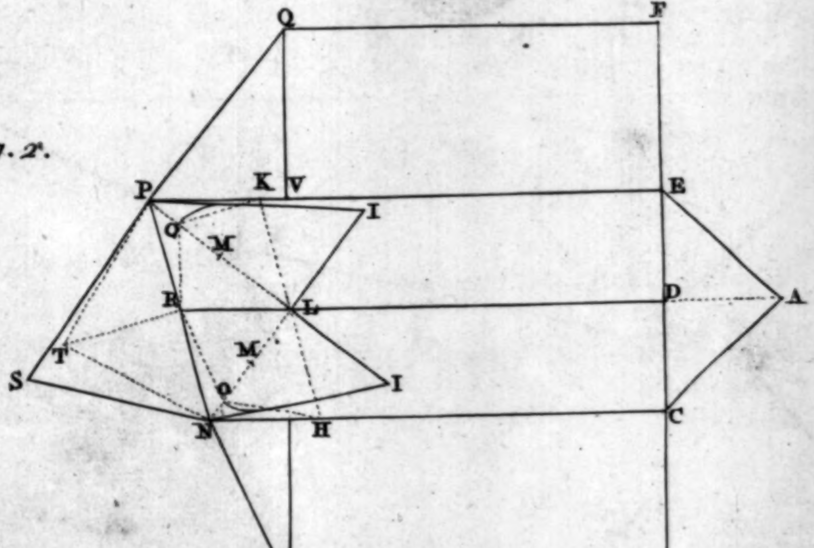


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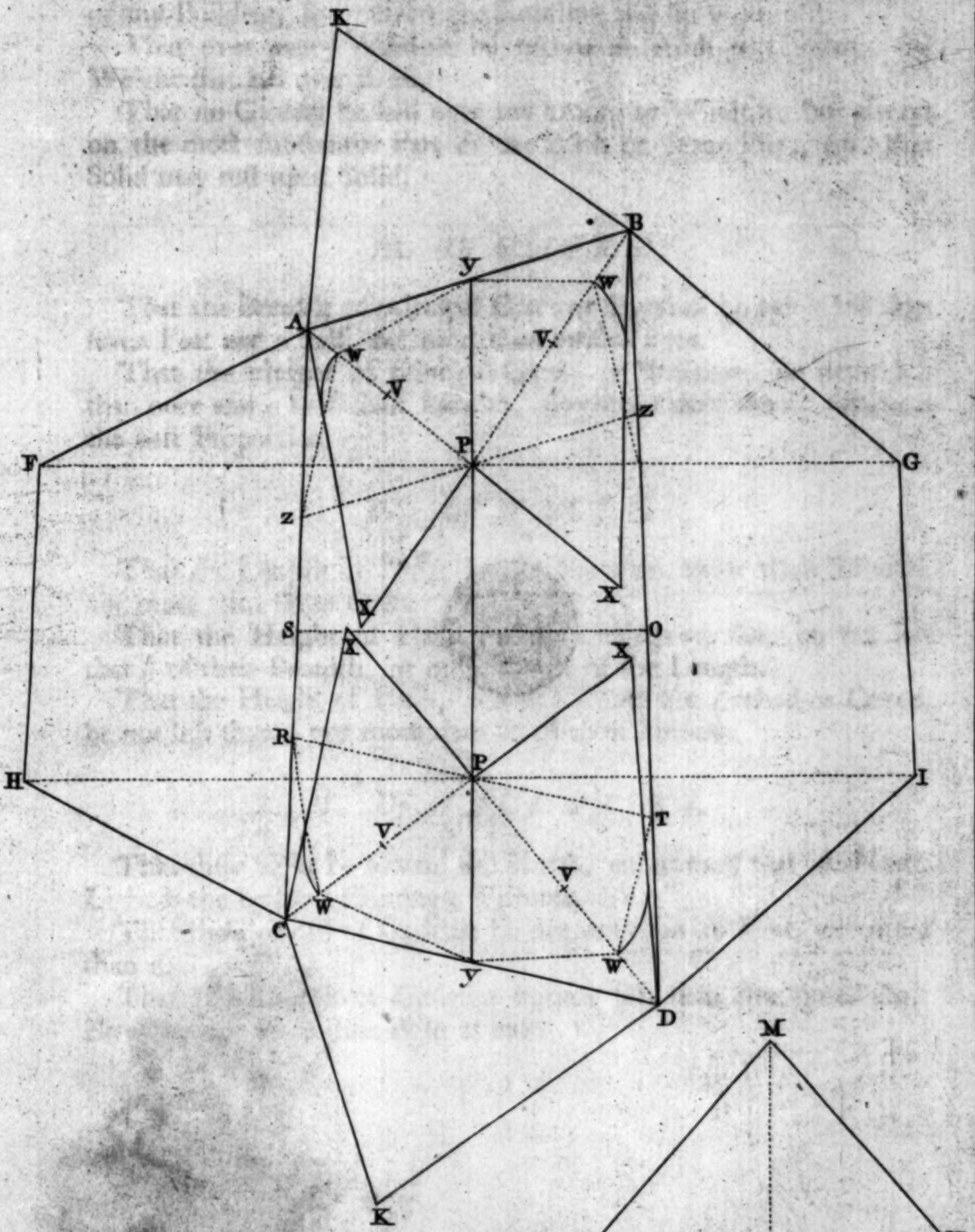
Plate XXXVI



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the ſecond Story. That Windows be not placed too near the Angles of any Building, for thereby the Structure will be weaken'd.

That over every Window be turned an Arch to diſcharge the Weight that lies over them.

That no Girders be laid over any Door, or Window, but always on the moſt ſubſtantial Part of the Brick or Stone Piers, *&c.* that Solid may reſt upon Solid.

III. *Of* GATES.

That the Breadth of principal Gates of Entrance be never leſs than ſeven Feet and a half, nor more than twelve Feet.

That the Height of principal Gates, or Entrance, be never leſs than once and a half their Breadth, nor more than twice, which is the beſt Proportion.

IV. *Of* HALLS.

That the Length of Halls, be not leſs than twice their Breadth, nor more than three times.

That the Height of Halls, whoſe Cielings are flat, be not leſs that $\frac{2}{3}$ of their Breadth, or more than $\frac{3}{4}$ of the Length.

That the Height of Halls, whoſe Cielings are Arched or Coved, be not leſs than $\frac{5}{6}$ nor more than $\frac{11}{12}$ of their Breadth.

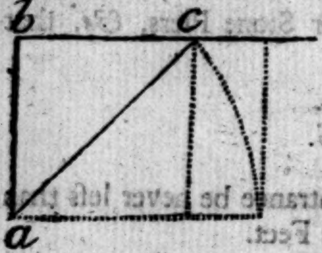
V. *Of* GALLERIES.

That their Sight be toward the North, on account that the North Light is the beſt for Paintings, Pictures, *&c.*

That the Breadth of Galleries be not leſs than 16 Feet, nor more than 24.

That the Length of Galleries be not leſs than five times their Breadth, nor more than eight at moſt.

That the Height of Galleries be equal to their Breadth, if with flat Cielings; but if Arched, or Coved, $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{2}$ of the Breadth may be ſuperadded.



VI. *Of* ANTICHAMBERS.

That the Length of all Antichambers be equal to the Hypothenuſe of a Right-angled plain Triangle, as *a c*, whoſe Legs *a b* and *b c* are each equal to the Breadth of the Antichamber.

That the Breadth of all Antichambers be proportionable to the whole Structure. That the Height of Antichambers be not leſs than $\frac{2}{3}$ of the Breadth, or more than $\frac{3}{4}$ of the Length, when the Cieling is flat, and when arched or coved, not leſs than $\frac{5}{6}$, nor more than $\frac{11}{12}$ of their Breadth.

VII. *Of* CHAMBERS.

That all principal Chambers of Delight be placed towards the beſt Proſpects of the Country, and, if poſſible, to the Eaſt.

That the Length of Chambers never exceed the Breadth and $\frac{1}{3}$ of the Breadth; therefore the Length may be the Breadth exactly, or the Breadth and $\frac{1}{8}$, $\frac{1}{7}$, $\frac{1}{6}$, or $\frac{1}{5}$.

That the Height of all Chambers of the firſt Story, whoſe Cielings are flat, be not leſs than $\frac{2}{3}$ of the Breadth, or more than $\frac{3}{4}$ of the Length.

That the Altitude of the Chambers of the ſecond Floor be $\frac{11}{12}$ of the firſt Story.

That the Altitude of the Chambers in the third Floor be $\frac{3}{4}$ of the ſecond.

VIII. *Of* FLOORS.

That the Floor of every Story in a Building be truly level throughout, ſo as to paſs out of one Room into another, without going up or down Stairs, as is common in many Buildings.

That the Height of the Level of the firſt (or ground) Floor be never leſs than one Foot, nor more than four Feet.

IX. *Of* CHIMNIES.

1. *Of Hall Chimnies.*

That the Proportion of Hall Chimnies be as follows, *viz.* Their Diſtance between the Jaumbs from ſix to eight Feet; their Height from four Feet and a half to five Feet; their Projection from two Feet and a half to three Feet at moſt; the Breadth of the Jaumbs from nine to twenty Inches, or more, as occaſion may require according to the Order that the Chimney is adorned with.

2. *Of Chamber Chimnies.*

The Proportion of Chamber Chimnies are as follows, *viz.* Their Breadth from five to ſeven Feet; their Height four Feet and an half, and Projecture two Feet and an half.

3. *Of Chimnies in Studies, &c.*

The Proportion of Chimnies in Studies are as follows, *viz.* Their Breadth from four to five Feet at moſt; their Height four Feet, and Projecture two Feet and a half.

That the Funnels of Chamber Chimnies, or Studies, be not narrower than ten Inches or wider than fifteen, which is a good Size for Kitchen Chimnies.

X. *Of the Funnels of Chimnies.*

That the Funnels of Chimnies be carried a ſufficient Height above the Ridge, that Winds may have the leſs Power to beat the Smoak back.

That the Funnels of Chimnies be not wide, becauſe thereby the Wind may drive down the Smoak into the Room; or too narrow, ſo that it cannot have a free Paſſage out.

That the Funnels of Chimnies be truly perpendicular, otherwiſe the Smoak cannot ſo freely paſs.

That no Timber, Joiſt, *&c.* be laid nearer the Jaumbs than one Foot. That no trimming Joiſt be laid nearer than ſix Inches to the Back of any Chimney.

That the Funnels of all Chimnies have not any Timber, as Girders, Joiſts, *&c.* laid therein, leaſt ſome time or other they chance to take Fire.

XI. *Of Joiſts, Rafters, and Girders.*

That the greateſt Diſtance that Joiſts, or Rafters, are laid from each other, do not exceed 12 Inches, and Quarters in Partitions 14 Inches aſunder. That no Joiſt bear at a greater Length than twelve Feet, or ſingle Rafters more than ten Feet.

That the Length of Joiſts laid in the Wall be not leſs than ſeven Inches, and no Girder leſs than nine Inches. *See General Rules on Page* 80.

XII. *Of MATERIALS,* &c.

1. That Money and Materials be always ready from the Beginning, or Laying of the Foundation, to the Turning of the Key, when the Whole is compleated.

2. That great Care be taken in the Goodneſs of Foundations, and that they be truly level.

3. That the Thickneſs of all Foundations be double to the inſiſtent Wall.

4. That the moſt heavy Materials be imployed in the Foundation.

5. That all Walls diminiſh in Thickneſs according to the Nature and Height of the Structure.

6. That every Wall be perpendicular.

7. That ſuch Bricks as are not well burnt, be not uſed in any Building.

8. That the Depth of all Fabricks in the Ground, that have Cellars, Vaults, *&c.* be $\frac{1}{7}$ of the whole Height, and thoſe that have no Cellars to be $\frac{1}{6}$ of the Height.

9. That the Kitchen be ſpacious and light, and as remote from the Parlour as poſſible, and to be under Ground; as alſo the Pantry, Bake-Houſe, Still-Room, Buttery, Dairy, and Servants Offices in general.

10. That Cornices do not project too far out from the Building, whereby the Windows will be darkened.

11. That of all Kinds of Arches none is ſo ſtrong as the Semicircle.

12. That the Depth of all Ruſtics be never more than one Foot, nor leſs than nine Inches.

13. That the Thickneſs of Pilaſters, of Doors and Windows, be not more than $\frac{1}{5}$ of their Aperture, or Breadth, nor leſs than $\frac{1}{6}$.

14. That the Projecture of Pilaſters in general be $\frac{1}{6}$ of their Thickneſs.

15. That the Roofs of all Buildings be not too heavy, or too light, and that interior Walls ſupport part of the ſame.

16. That convenient Ciſterns be well placed, plentifully to furniſh every Office with Water; and that proper Machines be made to raiſe the ſame therein.

Laſtly, That convenient Drains, to carry away Soil, *&c.* be well contrived, and ſecretly placed, with Vents to diſcharge the noiſome Vapours that uſually ariſe from them.

THE

THE

Builder's Dictionary:

CONTAINING

An Explanation of the Terms made Uſe of in ARCHITECTURE; alſo the Terms of ART uſed by Workmen concerned in Building.

ABACUS is a ſquare Table, Liſt, or Plinth, in the upper Part of the Chapiters of Columns, eſpecially thoſe of the *Corinthian* Order; *Abacus* comes from the Greek Word *Abax*.

Abrevoirs, a Term in Maſonry, by which is underſtood the Intervals, or Spaces between the Stones in laying them, commonly called the Joints.

Acanthus, the Herb whoſe Leaves are repreſented in the Capital of the *Corinthian* Column.

Acroteria are ſharp and ſpiry Battlements, or Pinacles, that ſtand in Ranges, with Rails and Baluſters, upon flat Buildings. Alſo Images ſet on the Tops of Houſes, are ſo called by ſome.

Acroteres, are Pedeſtals upon the Corners and Middle of a Pediment to ſupport Statues; they may properly be called Pinacles. The Word in Greek ſignifies the Extremity of any Thing; the Tip of a Finger, a Rock, or the like.

Acute Angle, an Angle that contains leſs than ninety Degrees.

Adze, an Inſtrument uſed by Carpenters to chop or cut with.

Alcove, by the Spaniards called *Alcobar*, is a Receſs within a Chamber for the ſetting of a Bed out of the way. Alſo a *Seat* at the Termination of a *Walk* in a Garden.

Amphitheatre, is an Edifice, or Building of an oval, or circular Form, with Rows of Seats one above another, where Spectators might ſit to behold Stage-Plays, and other public Diverſions.

Anabathrum, a Place that is aſcended to by Steps.

Anchors, in Architecture, is a certain ſort of Carving, ſomewhat reſembling an Anchor, or Arrow-head; 'tis commonly part of the Enrichments of the Boultins of Capitals of the *Tuſcan*, *Doric*, and *Ionic*, Orders; and alſo of the Boultins of Bed-mouldings, of the *Doric*, *Ionic*, and *Corinthian* Cornices. Theſe Anchors and Eggs being alternately carved throughout the whole Building.

Ancones, the Conſoles (a ſort of Brackets and ſhouldering Pieces) are called Ancones by *Vitruvius*. See *Conſole*.

Annulet, the ſame as Cincture, from the Latin *Annulus*, a Ring; in Architecture, 'tis uſed to ſignify a narrow flat Moulding which is common to divers Places of the Columns, as in the Baſes, and Capitals, *&c.* 'Tis the ſame Member as the Sieur *Mauclere*, from *Vitruvius*, calls a Fillet, and *Palladio*, a Liſtella, or Cincture; and *Brown*, from *Scamozzi*, a Supercilium, Liſt, Tinea, Eye-brow, Square and Rabit.

Antæ, Pillars adjoining to the Wall. See *Paraſtatæ*.

Antichamber, from the Italian *Anti-camera*, an outer, or fore Chamber; a Room in Noblemens Houſes, where Strangers ſtay till ſuch time as the Party to be ſpoken with is at Leiſure.

Antic, a Term in Sculpture, and Painting, being a confuſed compoſure of Figures of different Natures, and Sexes, *&c.* as of Men, Beaſts, Birds, Flowers, Fiſhes, *&c.* it is alſo called Groteſque.

Anticum, from the Latin, a Porch before a Door, the fore Door, a Hatch.

Antipagments, the Ornaments, or garniſhing in carved Work, ſet on the Architrave, [Jaumbs, Poſts, or Puncheons of Doors] whether of Wood, or Stone.

Antique, *Lat.* By Antique Buildings we mean the Buildings of the *Greeks* and *Romans*.

Angle, [in *Geometry*] is the Inclination, or leaning of two Lines, one towards the other; the one touching the other, yet not being directly joined together. *See Plate* 1, *Fig.* 4. and 5.

Apertions, or *Apertures*, from the *Lat.* ſignifying Opening; but in Architecture 'tis uſed to ſignify Doors, Windows, Stair-Caſes, Chimnies, or other Conduits; and in ſhort all Inlets, or Outlets, for Men, Light, Smoak, *&c.*

Aqueduct, from the *Lat. Aqueductus*, a Conveyance made for the carrying of Water from one Place to another.

Arcade, a Range of Arches with open Places to walk, as that of *Covent-Garden*, the *Royal-Exchange*, &c.

Arches, it comes from the *Lat. Arcus*, a Bow. In Architecture 'tis uſed to ſignify an inward Support to the Superſtructure, and it is either Circular, Elliptical, or Strait.

Architectonic, belonging to the chief Overſeer of Buildings, alſo to an

Architect, a Maſter-workman in a Building; and is he that ſuperviſes and gives the *Draughts* or Deſigns of a *Fabrick*, and Directions for a MODEL thereof, if required, and alſo whoſe Buſineſs it is to conſider of the manner and method of the Building, and alſo the Charge, and Expence of the whole.

Architecture, the Science which teacheth the Art of Building, being a Skill obtained by the Art of Deſigning, and the Precepts of Geometry, by which it gives the Rules for deſigning and raiſing all ſorts of Structures, according to Geometry and Proportion: Containing under it all thoſe Arts that conduce any thing to the framing Houſes, Temples, *&c.* The Scheme or Projection of a Building is eaſily laid down in three ſeveral Draughts, or Deſigns. The firſt is a Plan, which ſhews the Extent, Diviſion, and Diſtribution of the Ground into Apartments, and other Conveniencies. The ſecond ſhews the Stories, their Heights and outward Appearances of the whole Building; and this we call the Deſign, or Elevation. The third, called the Section, ſhews the Inſide; and from theſe three Deſigns, the Undertaker forms a Computation of the Expence of the Building, and the time required to go through with it. So much for what is called Civil Architecture. Military Architecture, uſually called Fortification, has for its Object the making a Place of difficult and dangerous Approach to an Enemy.

Archives, a Place where ancient Records, Charters, and Evidences of a Nation are kept: Alſo the Records themſelves.

Architrave, the Word comes from the Greek *Archos*, chief; and the Latin *Trabs*, a Beam. 'Tis alſo ſometimes called Epiſtyle, from the Greek *Epi*, upon, and *Stylos*, a Column. 'Tis uſed in Architecture to ſignify the Moulding, or Ornament, next above the Capital of a Column; it being always the next Member below a Freeze: The Word is alſo ſometimes uſed to ſignify the chief or principal Beam of a Building, as what we call Portico's, Piazza's, or Cloyſters. By Cloyſters we underſtand a long kind of Galleries, or Walking-places, whoſe Roof is born, or ſupported, by Columns, or Pillars, at leaſt on one ſide; and have not Arches riſing from them to bear the Superincumbent Part of the Fabrick, but have a Beam reſting, or lying upon the Tops of the Columns, by which the ſuperior Part of the Edifice is ſupported, upon which Account I ſuppoſe it to be called chief or principal Beam. In Chimnies, the Architrave is the Mantle over the Jaumbs of Doors, 'tis called *Hyperthyron*.

There are alſo Architrave-Doors and Windows; thoſe are called Architrave-Doors, which have an Architrave on the Jaumbs, or Puncheons, and over the Doors upon the Cap-piece, if ſtrait. Alſo upon the Jaumbs or Cap-pieces of Windows. The form of theſe Architraves about Doors are not always the ſame; for ſometimes they are according to one of the five Orders of Architecture; but 'tis ſometimes done according to the Workman's Fancy.

Aræſtyle, this Word *Vitruvius* uſes to ſignify the greateſt Interval, or

Diſtance, which can be made between the Columns; conſiſting of four Diameters. It comes from the Greek *Arios*, thin ſet; or, *Rare* and *Stylos*, a Column.

Aſhlar; by *Aſhlar* is meant common or free Stones, as they come out of the Quarry of different lengths and thickneſſes.

Aſhlering, quartering in Garrets about 2 ½, or 3 Feet high, perpendicular to the Floor, up to the under ſide of the Rafters.

Aſtragal, a little round Moulding, which incompaſſes the top of the Fuſt, or Shaft, of a Column. It comes from the Greek *Aſtragalos*, the Bone of the Heel. The Shaft always terminates at top with an *Aſtragal*, and at bottom with a *Fillet*, which in this place is called *Ozia*.

Attic, in Building, a little Order, placed upon another much greater; for inſtead of Pillars, this Order has nothing but Pilaſters, with a Cornice architraved for an Entablement; as that, for inſtance, in the Caſtle of *Verſailles*, above the Ionic, on the ſide of the Garden.

Attic, or *Athenian*, Baſe, the ſame as the *Doric* Baſe, which See.

B

BACK, *Baquette*, a kind of Aſtragal, or Hip moulding, is a Term in Carpentry, by which they ſignify the outward Angle, or the Hips, or corners of a Roof; which in ſquare Frames, where the Roof is ¼ Pitch, contains an Angle of 116 Degrees 12 M.

It is alſo a Term uſed by Ironmongers, to ſignify a certain ſort of Nails.

Balcony, is a kind of open Gallery, (without the Walls of a Houſe or Building) for People to ſtand in, and behold any Action, as Pageants, and the like, in Cities, or to take the Air, *&c.*

Baldaquin, is a *French* Word, which properly ſignifies a Canopy carried over the Holy Sacrament, among the Roman Catholics. 'Tis uſed by Architects to ſignify a Piece of Architecture, built in faſhion of a Canopy, or Crown, ſupported by ſeveral Pillars to ſerve for a covering to an Altar; ſome alſo uſe it to ſignify a Shell over the Front-Door of a Houſe.

Balks, pieces of Firr-Timber coming from beyond the Seas by Floats.

Ballon, *French*, a Term in Architecture, ſignifying the round Globe of the Top of a Pier, or Pillar.

Balluſtrade, a Term in Architecture, uſed to ſignify a Row of turned Pillars, called Baluſters, made of Marble, Iron, Wood or Stone, ſo high as for a Man to reſt his Elbows, fixed upon a Terraſs, or upon the top of a Building, or to make any Separation.

Band, in Architecture, is any flat Member that is broad, and not very deep; the Word *Face* is ſometimes uſed to ſignify the ſame thing.

Bandelets, it is derived from the French *Bandelette*, a little Fillet, or Band; 'tis uſed by Architects, to ſignify the three Parts that compoſe an Architrave.

Bargecourſe, is a Term uſed by Workmen, by which they ſignify a part of the Tyling, which projects over without the principal Rafters, in all Buildings where there is a Gable-End.

Baſe, from the Greek, *Baſis*, a Reſt or Support to any Body, and which bears up another; but is particularly applied to the bottoms of Columns and Pedeſtals.

Baſilic, this among the Ancients, was a large Hall, with Portico's, Iſles, Tribunes and Tribunals, when the Kings themſelves adminiſter Juſtice. *Baſiliſcos*, in Greek, ſignifies *Royal*.

Batter, a Term, uſed by Workmen, to ſignify that a Wall, a piece of Timber, or the like, doth not ſtand upright, but leans from you-ward, when you ſtand before it; but when it leans toward you, they ſay it over-hangs, or hangs over.

Bay, the Word is uſed to ſignify (as it were) the Magnitude of a Barn; for if a Barn conſiſts of a Floor and two Beams, where they lay Corn, they ſay a Barn of three Bays.

Bay-Window, is ſuch a one as is compoſed of an Arch of a Circle; and ſo by conſequence will ſtand without the ſtreſs of the Building.

Bead, a Moulding ſo called, which is commonly made upon the Edge of a Piece, and known by all Workmen.

Beam, in Building, is a piece of Timber which always lies croſs the Building, into which the Feet of the principal Rafters are framed.

Beam-Filling, is Bricklayers-work, 'tis only filling up the vacant Spaces betwixt the Raiſing-Plate and the Joiſts.

Bedding-Moulding, is a Term uſed commonly amongſt Workmen, it conſiſts of theſe four Members, *viz.* 1. (below) an O G. 2. A Liſt. 3. A large Boultin; and 4th and laſtly, under the Coronet another Liſt; this is what they frequently call a Bed-Moulding.

Bevel, any thing that is not ſquare is called a Bevel Angle; whether it be more Obtuſe, or more Acute than a Right Angle.

Binding-Joiſts, are thoſe Joiſts, in any Floor, into which the Trimmers of Stair-Caſes (or Well-Hole for the Stairs) and Chimney-ways are framed; theſe Joiſts ought to be larger than common Joiſts.

Boaſt, among Workmen, is the taking off the ſuperfluous part in Carving, or Mouldings, &c.

Borders, among Workmen, are thoſe pieces round the Slabbs of Chimneys in the Floor. Alſo all plain Spaces round *Carving*, *Painting*, &c. is called the *Border*.

Bond, a Term uſed among Workmen; for when they ſay, *Make good Bond*, they mean, faſten the two or more pieces of Timber well together, either with Tenanting and Mortiſing, or Dove-tailing, &c.

Botham, is an Ironmongers Term, by which they uſe to ſignify a certain ſort of Nails.

Boulder-Walls, that is, Walls made of round Flints, or Pebbles, which are found where the Sea hath a breach caſt up, and alſo at ſome other places where there are Plenty of Flints.

Boultin, in Architecture, is a Convex-Moulding, that conſiſts of an exact $\frac{1}{4}$ of a Circle; being the Member next below the Plinth in the *Tuſcan* and *Doric* Capitals.

Brace, in a Building, is a piece of Timber, which is framed in with Bevel-Joints. Its uſe is to keep the

Building from ſwerving, either this or that way; they are ſometimes called Struts, *viz.* When they are framed in the King-piece, and principal Rafters.

Bracketts, or *Braggotts*, are the ſeeming Supports of the Ends of Steps to Stairs, alſo to Shelves, *&c.*

Breſt, a Term in Architecture, made uſe of by ſome, to ſignify the ſame Member in a Column, that others call a *Thorus.*

Breſt-Summers, in a Building, are Timbers into which the Girders are framed in the Firſt Floor; but when in the Ground Floor (they call it a Sill) and in a Garret Floor, then it is called a Beam.

Butment, is a Term uſed by Maſons and Bricklayers, by which they mean the Supporters, or Stays, on or againſt, which the Feet of Arches reſt.

Button-Nails, are a ſort of Nails with round Heads, and but ſhort Shanks, tinned and lackered.

Buttreſs, a Term in Architecture, uſed to ſignify a Strength, or Support, either of Brick, or Stone, intended to keep the Work the firmer in its Poſition, as againſt Brick, or Stone-Walls, that are high, or have any conſiderable Weight againſt them on the other ſide, as a Bank of Earth, or the like; they are alſo uſed againſt the Angles of Steeples, Churches, and other Buildings of Stone, *&c.*

C A

C*ABINETS*, ſtrictly taken, is the moſt retired Place in a Houſe.

But a Cabinet in Palaces, and great Houſes, conſiſts of an Out-Chamber, and a Cabinet with a Gallery on the ſide.

Caliducts, that is, Conveyors of Heat. The Ancients uſed to warm their Rooms with certain (ſecret) Pipes (called *Caliducts*) that were conveyed in the Walls, tranſporting Heat to ſundry Parts of the Houſe, from one Common-Furnace.

Camber-Beams, a piece of Timber cut Arching (or with an obtuſe Angle) in the middle. Camber-Beams are commonly uſed in Platforms, as Church-leads, *&c.*

Cames, the ſmall ſlender Rods of Caſt-lead, of which the Glaziers make their turned Lead.

Camerated, Vaulted or Arched.

Cantalivers, the ſame as Modillions, only thoſe are plain, but theſe are carved. They are both a kind of Cartouzes, ſet (at equal diſtance) under the Corona of the Cornice of a Building.

Cantaliver-Cornice, is ſuch a Cornice as have Cantalivers under it.

Capital, is the upper Part of a Column; ſuch as have no Ornaments, are the *Tuſcan* or *Doric*, we call Capitals with Mouldings; and the reſt which have Leaves, and other Ornaments, Capitals, with Sculptures. The Word is derived from the Latin, *Caput*, the Head or Top of any thing.

Carcaſe, the Timber-work (as it were the Skeleton) of a Houſe, before it is Lathed and Plaiſtered.

Cariatides, from the Greek, *Kariatydes*, a People of *Caria:* By theſe in Architecture, are meant certain Figures of Captive Women, dreſt after the manner of that Nation, and ſerving inſtead of Columns to ſupport the Entablements.

Car-Tooſes-Touzes, in Architecture, are much the ſame as Modillions; only theſe are ſet under the Cornice in Wainſcoting, and thoſe at the Eves of a Houſe.

Cartouche, *Perault* ſays, it is an Ornament of carved Work, of no determinate Form, whoſe Uſe is to receive a Motto, or Inſcription, the Word being borrowed from the Italian *Cartoccio*.

Cartridges, in Architecture, are the ſame as *Cartoozes*.

Caſe of Glaſs, a Caſe of Crown-Glaſs contains twenty-four Tables, each Table being circular, or nearly ſo, and about three Feet ſix Inches, or three Feet eight Inches Diameter.

Caſement, in Architecture, is a Hollow Moulding. Some Architects make it $\frac{1}{6}$ of a Circle, others $\frac{1}{4}$. Alſo an Iron Frame to Windows is ſo called.

Caſt, (among Workmen) a piece of Timber, or a Board, or the like, is ſaid to caſt, or to be caſt, when (by its own Drought or Moiſture, or by the Drought or Moiſture of the Air, or other Accident) it alters its Flatneſs and Straitneſs, and becomes crooked.

Catadrome, a kind of Engine, like a Crane, which Builders uſe in lifting up, and letting down any great Weights.

Catheta, a perpendicular, or plumb Line, falling from the Extremity of the under-ſide of the Cimatium (of the *Ionic* Capital) through the Centre of the Volute.

Cavetto, a round concave Moulding, which has a quite contrary effect, to the quarter round; the Workmen call it *Mouth*, when in its natural ſituation, and *Throat* when turned upſide down.

Cavazion, a Term of Architecture, ſignifying the under-digging, or hollowing, of the Earth, for the Foundation of a Building. *Palladio* ſays, it ought to be the ſixth Part of the Height of the whole Building.

Caulicoli, the carved Scrolls (under the Abacus) in the *Corinthian* Capital.

Ceiling, in Architecture, is the Lathing and Plaiſtering at the Top of a Room, upon the under ſide of the Joiſts of the next Room.

Cement, in Architecture, is a ſtrong, ſticking, cleaving, or binding Mortar, of which there are two Sorts, *viz.* cold Cement or hot Cement.

Chambers, in a Houſe or Building are the Rooms between the Ground Story and Garrets, ſo that there are in ſome Buildings two or more Stories of Chambers.

Channel, (in the *Ionic* Capital) is that Part which is under the Abacus, and lies open upon the Echinus, or Eggs, which has its Centers or Turnings on every ſide, to make the Volutes. Alſo the ornamental Part of the *Doric* Triglyphs, and the paving in the middle of a Street, &c. are ſo called.

Chapiter, in Architecture, ſignifies the Top, or Head of a Pillar.

Chimney-Jaumbs, the Sides of a Chimney, commonly coming out perpendicularly (tho' ſometimes circularly) from the Back; on the Extremities of which the Mantle-Tree reſteth.

Chimney-Pieces, certain Mouldings of Wood, or Stone, ſtanding on the fore-ſide of the Jaumbs, and coming over the Mantle-Tree.

Chord, is a Line in a Circle connecting the two ends of any Arch.

Cima-Recta, or *Cymaiſe*, from the Greek *Kymation*, a Wave, called by Engliſh Workmen Ogee, which is of two Kinds, *viz.* Cima-Recta, and Cima-Reverſe, or the back Ogee, whoſe Beauty conſiſts in having its Height and Projecture equal to each other.

Cincture, is a Liſt, or Fillet, at the Top or Bottom of a Column; that at the Top is ſometimes called *Colier*, and ſometimes *Annulus*.

Cilery, a Term in Architecture, ſignifying the Drapery, or Leafage that is wrought upon the Heads of Pillars.

Ciſterns, are Veſſels made to ſerve as Receptacles for Rain or other Water for the neceſſary Uſes of a Family.

Circle, is a plain Figure, comprehended under one only Line, called its

Circumference, whence all the Lines drawn to its Center are equal to one another.

Circumferentor, the Name of an Inſtrument for ſurveying Land.

Clamp, a Clamp is a Kiln, built above Ground, for the Burning of Bricks. Alſo Pieces on the Ends of Shutters, Tables, *&c.* are ſo called.

Clinkers, thoſe Bricks are ſo called by ſome, which by the Violence of the Fire are run, and are glazed over.

Cloiſter, a cloſe and ſeparate Habitation, where Friers, Nuns, and Monks, live retired from the World: Alſo a long Place covered with a Floor, or Platform, ſupported by Pillars.

Coins. See *Quoins.*

Coller-Beam, a Beam framed croſs betwixt two principal Rafters.

Coloſſus, this is applied to any Figure that is far greater than the Life, alſo a Building is called a Coloſſus, when of extraordinary Bigneſs, as the ancient Amphitheaters, the Pyramids of Egypt, *&c.*

Column, is a round Pillar, compoſed of a Baſe, a Fuſt, or Shaft, and a Capital, and ſerves to ſupport the Entablement.

Compartition, by this Term Architects underſtand a graceful Diſtribution of the whole Ground-Plot of a Building, into Rooms of Office, and of Reception, or Entertainment.

Compartment, in Architecture, is a particular Square (for an Inſcription, or ſome other Device) marked out in ſome ornamental Part of a Building.

Concamerate, to make an Arched-Roof, as in Vaults, *&c.* to arch over.

Concave, hollow, and Concavity is the Hollowneſs of any thing.

Concentrick, Figures that have the ſame common Center.

Conclave, in Architecture, is a Cloſet, or Inner-Chamber.

Conduits, Sewers, or Gutters, to convey away the Suillage of a Houſe.

Cone, a Latin Word, a Geometrical Figure, of a pyramidical Form like a Sugar-Loaf.

Conges, in Architecture, are the Rings, or Ferrils heretofore uſed in the Extremities of Wooden-Pillars, to keep them from ſplitting, afterwards imitated in Stone-work.

Conſole, to cloſe up in any Ornament cut upon the Key of an Arch, which has a Projecture, or Jetting, and on occaſion, ſerves to ſupport little Cornices, Figures, Buſts, and Vaſes. 'Tis a French Word.

Contour, the out-line of any Member in Architecture; as that of a Baſe, or Cornice, or the like; a French Word.

Contignation, a Story in Building. In Latin, *Contignatio*, ſignifies the laying of Rafters together.

Contramure, in Architecture, is an Out-Wall, built about the Wall of a City.

Copeing of Walls, is the Top, or Cover of it, made ſloping to carry off the Weather.

Corbeilles, a French Word, ſignifying a Baſket, is a Piece of carved Work, in the Form of a Baſket full of Flowers, or Fruits, ſerving in Architecture to finiſh ſome Ornament.

Corbel-Bet-Bil, a ſhouldering piece in Timber-work, jutting out like a Bragget.

Corbel, Holes left in the Walls of ancient Churches, &c. for Images to ſtand in.

Cornice, comes from the French *Corniche*, and makes the third and uppermoſt Member of the Entablement, which is different in the ſeveral Orders. The Word Cornice, however, is applied to every prominent, or jetting, Member that crowns any Body; and thus we ſay, the Cornice of a Pedeſtal, and the like. Cornices are alſo placed on the Top of Wainſcot, and under the Eaves of Houſes, &c.

Corona, *Coronice*, or *Crowning*, theſe Words are indifferently applied to any thing that finiſhes an Ornament in Architecture; as for inſtance, to a Cornice or Pediment, &c. *Block-Cornices*, are ſuch as have a Kind of plain Modillion without any Caps under the Corona.

Coving Cornice, which has a great Caſement, or Hollow in it, which is commonly lathed and plaiſtered upon Compaſs, Sprockets, or Brackets.

Coveings, or *Corner-Stones*, are thoſe Stones on the Sides or *Jaumbs* of a Chimney, they are generally of Rigate or Fire-ſtone, and their Faces are hollow in Breadth, in grand Buildings they are of Marble.

Couſſinet, the firſt Stone, whence a Vault, or Arch, commences, is ſo called.

The little Cornice, or Plinth, that crowns the Pier, and ſupports the Couſſinet, is called Impoſt.

Crown, as *Corona*.

Crown-Poſt, is that Poſt which (in ſome Buildings) ſtands upright in the Middle, between two principal Rafters, from which there goes Struts, or Braces, to the Middle of each Rafter. It is alſo called a King-piece, or Joggle-piece.

Cubicle, a Bed-Chamber.

Culinary, of, or belonging to the Kitchen.

Culvertail, as Dove-tail.

Cupola, in Architecture, is a ſmall Room (either circular, or polygonal) ſtanding on the very Top of a Building; ſome call it a Lanthorn.

Cy-Mace-Macium, as *Cimatium*.

D A

DADO, or *Die*, the plain Part of the Pedeſtal.

Decor, or more properly Decorum; this Word is perfect Latin, and ſignifies the keeping of a due Reſpect between the Inhabitant and Habitation.

Denticles, Ornaments in a Cornice, cut after the manner of Teeth, from *Dens*, a Tooth. Theſe are particularly affected in the *Corinthian* Order, and the ſquare Member, wherein they are cut, is called the Denticle, in Latin *Denticulus*.

Diaſtyle, an Edifice, where the Columns are placed at the Diſtance of three of the Diameters from one another.

Die, this Term is applied to any ſquare Body, as the trunk or naked part of a Pedeſtal, which is that part included between the Baſe and Cornice thereof.

Diptere, among the Ancients, a kind of Temple, or other Edifice, encompaſſed round with a double Row of Columns; it ſignifies in Greek, two winged. The Pſeudo (or falſe) Diptere was the ſame; excepting, that inſtead of the double Row of Columns, this was only encompaſſed with a ſingle one.

Dome, alſo a Cupola, a round Piece of Architecture, (reſembling the Bell of a great Clock) ſet upon the Top of a Building, particularly upon Cathedral Churches, where it ſometimes ſerves for the Bell-Tower, the Dome of St. *Paul*'s is well known.

Dormantree, in Architecture, is a great Beam lying croſs a Houſe; otherwiſe called a Summer.

Dormer, in Architecture, is a Window made in the Roof of a Houſe, it ſtanding upon the Rafters.

Doucine. See *Cima*. It is an upright O—G.

Dove-Tails, a ſort of Joints, or Hinges, ſo called, becauſe they reſemble the Tail of a Dove, or Pigeon.

Dove-Tailing, among Workmen, is a manner of faſtening Boards (or any Timber) together, by letting one Piece into another, in the Form of a Dove's Tail.

Drag, with Workmen, a Door is ſaid to drag, when in opening and ſhutting it ſtops upon the Ground or Floor.

Dragon-Beam, Dragon-Beams are two ſtrong Braces, or Struts, that ſtand under a Breſſummer, meeting in an Angle upon the Shoulder of the King-piece.

Drapery, a Term in Architecture, and Painting, it being a Work wherein Cloaths are repreſented: Alſo as *Cilerie*.

Draught, or Deſign, is the Picture of an intended Building, deſcribed on Paper, wherein is laid down (by Scale and Compaſs) the deviſed Diviſions and Partitions of every Room, in its due Proportion to the whole Building.

Drip, this is called *Larmier* in French, and is the Bottom of the Corona; becauſe the Rain-water is by means thereof forced to fall Drop by Drop on the Ground, dripping like Tears.

Drips, in Architecture, are a certain kind of Steps (made on a flat Roof) to walk upon, a Way of Building, much uſed in *Italy*; the Roof is *not* quite flat, but a little raiſed in the Middle; and thoſe Steps, or Drips, lie each a little inclining to the Horizon.

Drops, in Architecture, are an Ornament of the *Doric* Order, underneath the Trigliphs, repreſenting Drops, or little Bells.

E A

E*AVES*, is the Margin of the Roof of a Houſe, *viz.* that part of the Roof that hangs over without the Walls.

Echinus, is ſometimes uſed to ſignify the Quarter Round; but more commonly that part of it, which includes the Ovum, or Egg, it comes from the Greek *Echinus*, the Shell of a Cheſnut.

Eggs, See Anchors and Quarter Rounds.

Elaboratory, a Place to work in; properly a Chymiſt's Work-Houſe, or Shop.

Emboſſing, in Architecture, is a kind of Sculpture, or Engraving, wherein the Figure ſticks out from the Plane whereon it is engraven, and according as it is more or leſs protuberant, is called by the *Italians* Baſſo, Mezzo, or Alto-relievo, uſed by the *Engliſh*, Baſs-relief, Mean-relief, or High-relief.

Embraſure, in Architecture, is the Enlargement that is made in a Wall on the inſide of a Window, or Gate, to give the more Light, or for the more Convenience of the Gate or Window.

Entablement, or *Entablature*, by *Vitruvius*, and *Vignola*, is called Ornament, and ſignifies the Architrave, the Freeze, and the Cornice together; it is likewiſe called *Trabiation*, and is different in the different Orders. The Word ſeems borrowed from the Latin, *Tabulatim*, a Cieling; becauſe we ſuppoſe the Freeze to be formed by the Ends of the Joiſts which bear upon the Architrave.

Enterſole, ſometimes called Mezanine, is a kind of low Story, at the Top of a Building for lodging Servants, &c.

Entry, in Architecture, is a Room deſigned only (or chiefly) for Paſſage to and fro, betwixt other Rooms, or from the outer Door into the Houſe.

Epiſtyle-Tylium. As Frieze.

Eurithimia, a Term of Architecture uſed by *Vitruvius*, by which he intends only that agreeable Harmony, that ought to be between the Length, Breadth, and Height of each Room in a Fabrick.

Euſtyle, is the beſt Manner of placing Columns, with regard to their Diſtance, which *Vitruvius* made to be two Diameters and a Quarter; the Word is compounded of *Eus*, Good, and *Stylos*, a Column.

Eyebrow, as Liſt or Fillet. *Vide* Capital.

Eye, in Architecture, is the Middle of an *Ionic* Volute, or Scroll, cut in the Form of a Roſe.

F A

F*ABRICK*, a Church, a Houſe, or any other Building.

Face, in Architecture, is any Member that has a great Breadth, and but ſmall Projecture, as the Architrave in the Front of a Building.

Face of a Stone, by which Workmen mean that ſuperficies or plain of the Stone, that is to lie in the Front.

Facia, or *Faſcia*, Mr. *Perault* ſays it ſignifies any flat Member; as the Bands of an Architrave, &c. There are ſome who write it *Faſce*, grounded upon a Latin Word *Faſcia*, a large

Riband, which *Vitruvius* makes uſe of on the like Occaſion.

Feather-Edged, Boards, or Planks, that are thicker on one Edge, than on the other.

Felling of Timber, the proper Seaſon uſually commences about the End of *April*, becauſe then the Bark riſes moſt freely, and if there be a Quantity to be felled, the Statute obliges to fell it then, the Bark being ſo uſeful for the Tanners.

Fence-Walls, Walls of Brick, or Stone, made round Yards, *&c.* See *Walls*.

Feſtoon, an Ornament of carved Work, in the Manner of a Wreath, or Garland of Flowers, or Leaves twiſted together, thickeſt at the Middle, and ſuſpended by the two Extreams, whence it hangs down with a graceful ſweep.

Fillet, is any little ſquare Moulding, which accompanies, or crowns a larger.

Fire-Stone, *Rigate* Stone, called *Fire-Stone*, is a ſort of Stone very good, and much uſed for Chimney Fire-Hearths, Ovens, Stoves, *&c.*

Flemiſh-Bricks, are a ſort of Bricks brought out of *Flanders*, and uſed for Paving; being much neater and ſtronger than Common or Clay-Bricks, they are of a yellowiſh Colour, and each Brick is 6 ¼ Inches long, 2 ½ Inches broad, and 1 ¼ Inches thick.

Floating, a Term uſed by *Plaiſterers* for their beſt *Ceilings*.

Floors, a Floor, in Architecture, is the bottom Part of a Room, on which we walk. Floors are of ſeveral Sorts; ſome are of Earth, ſome of Bricks, ſome of Stone, and ſome of Wood. Carpenters, by the Word Floor, underſtand as well the framed Work of Timber, as the boarding over it.

Fluſh, a Term uſed by *Carpenters*, when the Work is even or ſmooth; alſo in *Maſonry*, it ſignifies the breaking off of any Part of the Stone.

Flutes, or *Fluteings*, in Architecture, are the Hollows made in the Body of a Column; the *Doric*, *Ionic*, *Corinthian*, and *Compoſite* Columns, are commonly Fluted, or made with Flutes, or Hollows, running along the Body of the Column, from the Baſe to the Capital.

Flyers, are Stairs made of an oblong Square, whoſe fore and back-ſides ſtand parallel to each other; and ſo are their Ends: The ſecond of theſe Flyers ſtand parallel behind the firſt; the third behind the ſecond, and ſo of the reſt. If one Flight carry them not to the intended Height, then there is a broad Half-pace, from whence they begin to fly again as the firſt.

Foliage, in Architecture, and Sculpture, is Work wrought in Branches and Leaves.

Foot-pace, or, as ſome call it, Half-pace, is a Part of a Pair of Stairs, whereon, after four, ſix, or more Steps, you arrive to a broad Place, where you may take two or three Paces before you aſcend another Step, thereby to eaſe the Legs in aſcending the reſt of the Steps.

Foundation, the loweſt Part of a Building (generally laid under Ground) upon which the Walls of the Superſtructure are raiſed. This Word is alſo ſometimes taken for Public Buildings erected for pious Uſes.

Fountain, an Artificial Spring of (or Well to contain) Water in a Garden; whether the Water is brought in Pipes of Lead, &c. and commonly made to ſpout out of the Mouths, or other Part of Images.

Framing of a Houſe, is the Carcaſe, Flooring, Partitioning, Roofing, Ceiling, Beams, Aſlering, &c. and indeed all that is done by the Carpenter.

Freeze, or *Frieſt*, a large flat Member, which ſeparates the Architrave from the Cornice. See its Etymology under the Word *Zophoros*.

Freſco, a way of Painting or Plaiſtering (or rather both) upon Walls, to endure the Weather, and repreſenting Birds, Beaſts, Herbs, Fruits, &c. in Relief.

Frett-Work, a plain Bordering round Ceilings, Picture Frames, &c. being made with divers Fillets or Bands, and affording a great Variety of Figures by their Turnings.

Frigeratory, a Place to make or keep Things cool in.

Front, or *Frontiſpiece*, the Face, or Foreſide, of a Houſe. See *Portal*.

Frowey, Timber is ſaid to be frowey, when it is evenly tempered all the Way, and works freely without tearing.

Funnels of Chimneys, is the Shaft, or ſmalleſt part of them (where they are gathered into their leaſt Dimenſions) upwards.

Furrings, among Workmen, is the making good of the Rafters Feet in the Cornice, *i. e.* when Rafters are cut with a Knee, theſe Furrings are Pieces that go ſtrait along with the Rafter, from the Top of the Knee to the Cornice: Alſo when Rafters are rotten, or ſunk hollow in the Middle, and Pieces cut thickeſt in the Middle, and to a Point at each End, are nailed upon them to make them ſtrait again; the putting on of thoſe Pieces, is called *Furring the Rafters*; and thoſe Pieces ſo put on, are called *Furrings*. The ſame Term is uſed for *Joiſts*, which being by Time ſunk hollow in the Middle are furred up ſtrait.

Fuſt, from the Latin *Fuſtis*, a Club, ſignifies the Trunk, or Shaft of a Column, being that Part comprehended between the Baſe and the Capital.

G A

G*ABLE-END*, in Architecture, the Gable-End of a Houſe, is the upright triangular End of the Roof.

Gain, the bevelling Shoulder of the Joiſt, or other Stuff, is ſaid to gain by being longer.

Galleries, are long narrow Rooms, made on the Sides or Fronts of Houſes; they ſerve for walking, eating, and other Divertiſements.

Gard-Manger, from the *French*, a Store-Houſe, or Room to ſet Meat in.

Gavel, a Word uſed by ſome, by which they mean the ſame as *Gable*.

Girding-Beams, is uſed by ſome Workmen to ſignify the ſame as

Girders, which are ſome of the largeſt Pieces of Timber, in a Floor, the Ends of them are, for the moſt part, framed into Summers, or Breaſt Summers, and the Joiſts are framed in at one or both Ends to the Girders.

Glaſs, a tranſparent Body, made by Art of *Flints*, *Sand*, and *Aſhes*, and of this there are many Sorts, as *Crown Glaſs*, *French* or *Normandy Glaſs*, *German Glaſs*, *Newcaſtle Glaſs*, *Briſtol Glaſs*, *Looking Glaſs*, and *Jealous Glaſs*, which laſt is of that Nature that it cannot be ſeen thro', yet admits of the Light thro' it.

Gothic, Architecture, is that which is far removed from the Manner and Proportions of the Antique, having its Ornaments wild and chimerical, and its Profiles incorrect.

Gradatory, is derived from the Latin, and is uſed to ſignify a Place to which we go up by Steps, particularly an Aſcent from the Cloiſter, to the Choir in ſome Churches.

Grainery, a Place, to lay up Corn in.

Grange, a French Word, ſignifying a Building which hath Barns, Stables, Stalls, and other neceſſary Places for Huſbandry.

Ground-Plat, or *Plot*, a Piece of Ground, which a Building is to be erected upon.

Groove, a Term uſed by Joiners, to ſignify the Channel that is made by their Plough in the Edge of a Moulding, or Stile, or Rail, &c. to put their Pannels in, in Wainſcotting.

Guttering, in Carpentry, is the Boarding, and Bearers to lay the Lead on in the Fronts or Middle of the Roof.

Gutter-Tiles, are in Form, as they appear at a Diſtance, a kind of a Triangle, having one ſide convex, but this is whilſt they are flat and plain before they are bent fit for Uſe.

H A

HAIR, the Hair here mentioned, is *Bullocks-Hair*, ſuch as is uſed in Mortar for Plaiſter.

Hangs-Over. Vide *Batter*.

Headers, a Term among *Bricklayers*, when Bricks are laid Endways in a Wall, but when Lengthways they call them *Stretchers*.

Heads, a Term uſed by Bricklayers, by which they mean half a Tile in Length, but to the full Breadth of a Tile; theſe they uſe to lay at the End of a Roof.

Healing, by this Word is underſtood the covering of the Roof of any Building, which is of various kinds, *viz.* 1. Lead. 2. Tiles. 3. Slate. 4. *Horſham* Stone. 5. Shingles. 6. Reed. 7. Straw.

Heel, an inverted Ogee.

Helix, or *Urilla*, is a little Volute Caulicole, or Stalk under the Flower of the *Corinthian* Capital.

Hinges, are thoſe neceſſary Apendages by which all Doors, all Lids of Boxes, Cheſts, Trunks, &c. make their Motion, either of opening, ſhutting, or folding.

Hips, are thoſe Pieces of Timber which are at the Corners of a Roof, they are a great deal longer than the Rafters, by Reaſon of their oblique Poſition, and they are placed not with a right or ſquare Angle, but a very oblique one; and by Conſequence, they are not (or at leaſt ought not) to be ſquare at any Angle (as Rafters are) but Bevel at every one of them, and which is yet more, as Rafters have but four Plains, theſe commonly have five: They are by Country-Workmen uſually called

Corners; and ſome call them principal Rafters, and others Sleepers; the Truth is, Hips and Sleepers, are almoſt the ſame; only the Sleepers lie in the Vallies, (and join at the Top with the Hips) but thoſe Surfaces, or Plains, which make the back of the Hip, are the under-ſide of the Sleeper.

Hollow, a Term in Architecture, by which is meant a concave Moulding, being about a Quadrant of a Circle; by ſome it is called a Caſement, by others an Abacus.

Horſham ſtone, is a kind of thin broad Slate, of a greyiſh Colour, much uſed in ſome Parts of *Suſſex*, not only to heal or cover Churches and Chancels, but ſome great Houſes alſo.

Houſe, a Habitation or Place built with Conveniences to ſhelter a Man's Perſon and Goods from the Inclemencies of the Weather, and the Injuries of ill-diſpoſed Perſons.

Houſing, a Term uſed by ſome Bricklayers, for when a Tile, or Brick is warped, or caſt crooked, or hollow, in burning, they then ſay, *Such a Brick, or Tile, is Houſing*: Tiles are apt to be Houſing, or Hollow, on the ſtruck Side (or that which was upmoſt in the Mould) and Bricks on the contrary Side.

Hyperthyron, a Greek Word, ſignifying the Lintel, or Cap-piece of a Door-Caſe.

Hypotrachelium, or *Hypotrachelion*, the ſame as *Freeze*.

J A

JAUMBS, Door-Poſts; alſo the upright Poſts at the Ends of Window-Frames, and Chimneys, are ſo called. *Jambe* is a French Word, and ſignifies a Leg.

Ichnography, a Deſcription, or Draught of the Platform or Ground-Work of a Houſe, or other Building.

Impoſt, is a Term in Architecture, which I underſtand to be the Capitals of Pilaſters, that ſupport Arches. It comes from the Italian *Impoſto*, ſurcharged or burdened with, or laid upon, take it either way, the Name expreſſes the Thing.

Indigo will grind very fine, and lie with a good Body, and is much uſed in Painting, *&c.*

Intercolumniation, is the Space between two Columns, which, in the *Doric* Order, is regulated according to the Diſtribution of Ornaments in the Freeze; but in the other Orders, according to *Vitruvius*, is of five different Kinds, *viz. Picnoſtyle*, *Siſtyle*, *Euſtyle*, *Diaſtyle*, and *Arcoſtyle*. This the Latins expreſs by their Word *Intercolumnium*.

Interduces, in Architecture, are thoſe ſmaller Pieces of Timber, that lie horizontally betwixt the Summers, or betwixt them and the Sill, or Raiſing.

Joyſts, in Architecture, are thoſe Pieces of Timber, framed into the Girders and Summers, on which the Boards of the Floors are laid.

Juffers, a Term uſed by ſome Carpenters, for Stuff about four or five Inches Square, and of ſeveral Lengths. Alſo Quarters.

K E

KERF, the ſawn away Slit, in a Piece of Timber, or Board, the Way made by the Saw, is called a Kerf.

Knee, a Piece of Timber cut crooked with an Angle, is called a Knee-piece, or Knee-Rafter.

L A

L*ABORATORY.* See Elaboratory.

Laths for Building are long, thin, and narrow Slips of Wood uſed in Tyling or Ceilings, and are of three Sorts, *viz.* Heart of Oak, Sap Laths, and Deal Laths.

Lead, is a Material uſed in Buildings for Flatts, Gutters, Pipes, Ciſterns, Sinks, *&c.* and is well known, ſo needs no Deſcription.

Lintels, (in Stone and Brick Buildings) are the Pieces of Timber, that lie Horizontally over the Tops of Doors and Windows.

Liſt, and *Liſtella*, is a little ſquare Moulding, ſerving to crown or accompany a larger, or, on Occaſion, to ſeparate the Fluteings of a Column. It is ſometimes called a Fillet, and ſometimes a Square. It comes from the Italian Word *Liſta*, any kind of Liſt or Selvage: Alſo a Board is ſaid to be *Liſted* when the Sap on the Edges is ſawn away.

Lobby, as *Anti Chamber*.

M A

M*ANTLE*, in Architecture, is the Head-piece on the Jaumbs of a Chimney-piece, either of Stone, Wood, or the like.

Marble is a Kind of Stone, extremely hard, firm, and ſolid, dug out of Pits and Quarries, it takes a beautiful Poliſh, and is much uſed in Ornaments of fine Buildings, as Columns, Statues, Chimney-pieces, *&c.*

Of this Stone there is many Kinds, as, *Black* and *White Marble*, *Purple Marble*, *Egyptian Marble*, *Black* and *Yellow Marble*, *Statuary Marble*, &c.

Maſonry, is a Branch of Architecture, conſiſting in the Art of Hewing, Squaring, and Moulding of Stones for the Uſe of Building, or may be underſtood for the Aſſembling and Joining Stones together with Mortar.

Membretto, a Pilaſter that bears up an Arch.

Metops, is the ſquare Interval between the Triglyphs of the *Doric* Frize, which, among the ancients, uſed to be adorned with the Heads of Beaſts, Baſons, Vaſes, and other Inſtruments uſed in ſacrificing.

The Beauty of theſe Metops, conſiſts in their Regularity; that is, in their being perfect Squares; and yet when they are really Square, they appear to be leſs in Height than in Breadth; which is owing to the Projecture of the little Bandelet, wherein they terminate underneath, that hides a ſmall Part of their Height; for this reaſon M. *le Clerc* is for making the Metops a Minute or two more in Height than in Breadth; being of Opinion, they ought rather to appear Square, without being ſo, than really be Square, without appearing ſo.

Minute, is uſually the ſixtieth Part of a Module.

Mitchels, Purbec Stones for paving, picked all of a Size, from fifteen Inches Square, to two Feet.

Model, in Architecture, is particularly uſed in Building for a *Pattern* made in Wood, Stone, Clay, or other Matter, with all its Parts and Proportions in ſmall, in order to give an Idea of the Effect it will have in large, when executed.

Modern, this Word, in its genuine Meaning, is only applicable to ſuch Architecture as partakes partly of the *Gothic*, retaining ſomewhat of its Delicacy and Solidity ; and partly of the Antique, whence it borrows Members and Ornaments, without any Proportion or Judgment.

Module, a Meaſure made uſe of to regulate the Proportions of the ſeveral Members of Columns : In all the Orders 'tis the whole Diameter : A Module is commonly ſuppoſed to be divided into ſixty equal Parts, called Minutes ; Module comes from *Modulus*.

Modillions, in Italian *Modiglioni*, (a ſort of Cantalivers) are little inverted Conſoles under the Soffit, or bottom of the Drip, in the *Ionic*, *Compoſite*, and *Corinthian*, Cornices, and ought to correſpond to the middle of the Columns. Theſe are particularly affected in the *Corinthian* Order, where they are always enriched with carved Work. In the *Ionic* and *Compoſite*, they are more ſimple, having ſeldom any Ornament, excepting ſometimes a ſingle Leaf underneath. In *Latin* they are called *Mutuli*.

Moreſk-Work, a kind of Antic-work, in Painting and Carving, after the manner of the Moors (whence it has its Name) conſiſting of ſeveral Groteſco's, wherein there is no perfect Figure, either of Men, or other Animals, and wherein there is a wild Reſemblance of Birds, Beaſts, Trees, &c. intermingled.

Mortar, in Architecture, is a Preparation of Lime and Sand, mixed with Water, ſerving as a Cement, and is uſed by Maſons and Bricklayers in Building, and to a Rod of Brickwork is required a hundred and a half of Lime, and two Load of Sand ; and for Tiling, four Buſhels of Lime, and ſix or eight Buſhels of Sand, will be ſufficient for laying a Thouſand of Tiles, which is about a Square and $\frac{1}{2}$; ſo that a Square of Tiling will require about 2 $\frac{2}{3}$ of Lime, and about five Buſhels of Sand.

Moſaique, or *Moſaical-Work*, is a curious kind of Work, conſiſting of ſmall inlaid Pebbles, Cockles, and Shells of ſundry Colours ; and (of late) likewiſe with pieces of Glaſs figured at Pleaſure.

Mouldings, under this Name, are comprehended all thoſe Jettings, or Projectures, beyond the naked of a Wall, Column, &c. which only ſerve for Ornament ; whether they be ſquare, round, ſtrait, or crooked. Of theſe there are ſeven kinds, more conſiderable than the reſt, *viz.* the Doucine, or Cima-Recta ; the Talon, or Heel ; the Ovolo, or Quarter-round ; the Plinth, Aſtragal, the Denticle, and the Cavetto.

Munions, in Carpentry, are the ſhort upright Poſts that divide the ſeveral Lights in a Window-Frame.

Muniment, Room, a place for the keeping of Seals, Charters, Evidences, &c.

N A

NAILS, in Building, are ſmall Mettaline Members well know, but they are very numerous in their *Sorts*, as has been ſhewn in this Treatiſe. The No. required for *Lathing* is about 500 to a Bundle of five feet Laths, and 600 to a Bundle of four feet Laths at ſix ſcore to the hundred, and for flooring is required 200 to a Square. *Nails* are made tough by heating them in a Fire-ſhovel, or the like, and putting ſome Tallow or Greaſe on them.

Newel, the upright Poſt that a Pair of Winding-Stairs turns about.

Niches, the hollow places in a Wall, wherein Statues are ſet.

Noſeings, are Parts of the Sides of a Marble Chimney-piece, alſo the Edges or Front Parts of Steps, or at the foot of a Cove, *&c.*

O B

O*BELISK*, is a quadrangular Pyramid, very tall and ſlender, raiſed in a public Place to ſerve as a Monument of ſome memorable Action.

Og, *Ogee*, or *Orgive*, a ſort of Moulding, in Architecture, conſiſting of a Round and a Hollow, like an S.

Optick Glaſſes are thoſe that are ground either Concave or Convex, ſo as to collect or diſperſe the Rays of Light; by means of which *Viſion* is improved, and the Eye ſtrengthened, preſerved, *&c.*

Oratory, in Architecture, is a Cloſet or ſmall Apartment near a Bed-Chamber, furniſhed with a little Altar, or Image, for private Devotion (among the Romaniſts).

Orders, in Architecture, are the different Forms and Proportions of Columns, *&c.* There are five Orders (commonly reckoned) in Architecture, *viz.* the *Tuſcan*, *Doric*, *Ionic*, *Corinthian*, and *Compoſite*.

Orlo, the Plinth, or Square, under the Baſe of a Column, or under the Baſe of its Pedeſtal.

Ornaments, by which is underſtood all the Sculpture or carved Work, wherewith a piece of Architecture is enriched.

Orthography, in Architecture, ſignifies the Front or (any other) upright Side of a Houſe; or the Draught on Paper, of thoſe parts of a Houſe.

Ovolo, or *Echinus*.

P A

P*AINTING*, a Work in Building well known, for the Particulars of which, ſee the foregoing Treatiſe on Ditto.

Paliſade, or *Paliſado*, is an open Fence either of Wood or Iron for the diſplaying of the Proſpect of a Houſe, Garden, *&c.* or in Fortification.

Palliſication, a Term in Architecture, ſignifying the piling of the Ground-work, or ſtrengthening of the Ground-work, with Piles of Timber driven into the Ground, when they build upon a moiſt and marſhy Soil.

Pannel, (in Joinery) is a ſquare piece of thin Wainſcotting, ſometimes carved, and framed, or grooved in between thicker Pieces.

In Maſonry is one of the Faces of a hewn Stone.

Pantheon, in Architecture, is a Temple or Church of a circular Form, dedicated to all the Gods, or all the Saints.

Pantry, a Room for the keeping of Victuals, a Store Room.

Parallel-Ruler, is an Inſtrument of Wood and Braſs for drawing of parallel Lines, and is deſcribed in Page 19, and Plate III. Fig. D.

Parapet, from the Italian *Parapetto*, a Save-breaſt, is a little Wall, or ſometimes a Rail, ſerving either as a Reſt for the Arm, or as an Incloſure about a Key, Bridge, Tarraſs, *&c.*

Paraſtatæ, Pilaſters which ſtand alone, not adjoining to the Wall, and which the French call *Iſolées*, or *Inſulate*, from *Inſula*, an Iſland, as I take it.

Pargetting, in Architecture, ſignifies the Plaiſtering of Chimney-funnels, ſometimes it is uſed to ſignify the Plaiſter itſelf.

Parlour, a fair lower Room deſigned for the Entertainment of Company.

Paſſage, an Entry or narrow Place ſerving for a Thorough-fair into other Rooms.

Pavement, a Lay of Stone, Brick, or other Matter ſerving to ſtrengthen the Ground of divers Streets, or other Places, for the more commodious walking thereon.

Pediment, in French, *Fronton*, from the Latin *Frons*, *the Forehead*, is an Ornament that crowns the Ordonance, finiſhes the Fronts of Buildings, and ſerves as a Decoration over Gates, Windows, Niches, *&c.* It is ordinarily of a Triangular Form; but ſometimes makes an Arch of a Circle. *Vitruvius* calls it *Faſtigium*.

Pedeſtal, is a ſquare Body with a Baſe and Cornice, ſerving as a foot for the Columns to ſtand upon; and having, according to *Vignola*, the third part of the Height of its Column. It is varied in the different Orders.

Pediments, are the crowning frequently ſeen over Gates, Doors, Windows, and Niches, and ſometimes over entire Orders of Architecture. The Ridges of Houſes were what gave Architects the firſt Idea of this noble Part.

Pentadoron, a kind of Bricks ſo called.

Perquetting, a Floor laid, or compoſed of divers ſmall Figures, as Squares, Rhombs, *&c.*

Periptere, in the ancient Architecture, is a Building encompaſſed round with Columns. The Word comes from the Greek *Peri*, about, and *Pteron*, a Wing.

Perrons, are Steps raiſed before the Doors of great Houſes.

Perſian Order, is that which has Figures of Perſian Slaves, to ſupport the Entablement inſtead of Columns, as the *Cariatic* Order has the Figures of Women ſerving for the ſame purpoſe. The former Columns are uſually like robuſt Men, with long Beards, and ſuch Figures are more fit to repreſent an unhappy Slavery than thoſe of Women. The Character of Slavery is expreſſed in theſe Figures, either by tying their Hands before, or elſe behind their Backs. Columns of this kind, may very properly be uſed in a Gallery of Arms, *&c.* Princes Palaces; in which Caſe they may be made *Gigantic*, and their Entablature *Doric*.

Piazza, in Architecture, commonly called *Piache*, an *Italian* Name for a Portico, it ſignifies a broad open Place or Square, whence it became applied to Walks or Porticos of Pillars around them, like thoſe of *Covent Garden*, the *Royal Exchange*, &c.

Piedroit, in Architecture, is a ſquare Pillar, that is partly within the Wall.

Pillar, is a kind of round Column, diſengaged from any Wall, and made without any proportion; being always either too maſſive, or too ſlender; ſuch are the Pillars which ſupport the Walls of *Gothic* Buildings; in Latin they are called *Pilæ*.

Pilaſters, in Architecture, are a kind of half Columns (ſtanding againſt a Wall) with Baſes and Capitals, as Columns have; but differing from Columns in this, that Pilaſters are ſquare, but Columns round.

Pitch, by this Term, Architects underſtand the Angle, a Gable-End (and conſequently the whole Roof of a Building) is ſet to.

Platebands, the Liſts, or Fillets, being the Flutings of the *Ionic*, *Corinthian*, and *Compoſite* Columns. They are each in Breadth a quarter of the Flute. *Platebands* are alſo a ſquare Mould ſet at the end of an Architrave of the *Doric* Order. Plateband, *Perault* ſays, is a ſquare Moulding, having leſs Projecture than Height.

Platform, this Word, in Architecture, is ſometimes uſed to ſignify the Ichnography, or Draught of the Ground-Plot of a Houſe, but more commonly for a broad, ſmooth, and open Walk upon the top of any Building. *Platform* is alſo a Row of Beams, which ſupport the Timber-work of any Roof, and lie on the top of a Wall, where the Entablature ought to be raiſed.

Platfond, a French Word, for the Cieling, or Roof of a Chamber, or other Room, *&c.* the ſame as *Soffit*.

Plaſtique, or *Plaſtic Art*, is a Branch of Architecture, that is not only comprehended under Sculpture; but is indeed very Sculpture itſelf; but with this Difference; that the Plaiſterer, by his plaſtic Art, makes Figures by Addition, but the Carver by Subtraction.

Plinth, is derived from the Greek, *Plinthos*, a ſquare Brick, and is in Architecture, a ſquare Piece, or Table, under the Mouldings of the Baſes of Columns and Pedeſtals.

Plumbery, an Art belonging to Architecture, it being the Art of working in Lead.

Porphyry, a fine reddiſh Marble, ſtreaked with divers Colours. *Pliny* ſays, this kind of Marble comes out of *Egypt*, where there are large Quarries of it.

Portland-Stone, is much uſed in Building, and much ſofter and whiter than Purbec.

Portal, an ancient Term in Architecture, it was uſed to ſignify a little ſquare corner of a Room, ſhifted off from the reſt of the Room by the Wainſcot. The Word comes from the French *Portail*, a Gate, or Entrance, becauſe through it they enter into the Room.

Portails, the Decoration of the Face, or Front, of a Church, called alſo Frontiſpiece.

Portico, a kind of a Gallery, raiſed upon Arches, where People walk under Shelter, it has ſometimes a Soffit, or Ceiling; but is more commonly vaulted. Alſo the Front of a Church, *&c.* where Columns are detached from the Building, as the

Weſt-end of *St. Martin's*, *St. Paul's*, *Covent-Garden*, *&c.*

Prict-Poſts and Stiles among Carpenters, are ſuch as come in between Principals.

Profile, in Architecture, is a Draught repreſenting the Breadth, Depth, and Height of a Fortification, or Building, but not the Length; which properly belongs to a Plan, or Ground-Plot; ſo that it is in a Manner, the ſame with a Proſpect of a Place, or Building, viewed ſideways, and expreſſed according to the Rules of Perſpective in ſuch a Caſe.

Project, all Mouldings, *&c.* are ſaid to project, when they jutt out, or are beyond the Superficies.

Proportion, is the Juſtneſs of the Members in each part of a Building, and the Relation they bear to the whole.

Pudlays, pieces of Stuff, to do the Office of Leavers, or Hand-Spikes.

Pulvinata, a Frieze, ſwelling like a Pillow.

Punchins, ſhort pieces of Timber, placed under ſome conſiderable Weight to ſupport it. They commonly ſtand right between the Poſts, they are ſhorter and ſlighter than either principal Poſts, or prict Poſts; thoſe that ſtand on each ſide of a Door, are called Door-Punchins.

Purlins, thoſe pieces of Timber, that lie a-croſs the Rafters on the inſide, to keep them from ſinking in the middle of their Length.

Purbec-Stone, is a hard greyiſh Stone, almoſt like *Suſſex* Petties. They are uſed for Pavements.

Putlogs, pieces of Timber, or ſhort Poles, (about ſeven Feet long) uſed by Maſons and Bricklayers in building of Scaffolds to work on. The Putlogs are theſe pieces which lie horizontal to the Building, one end lying into it. And the other end reſting upon the Ledgers; which are thoſe pieces that lie parallel to the ſide of the Building.

Pycnoſtyle, this Term is uſed, when the Columns are ranged ſo cloſe to one another, that the Intercolumniation does not exceed a Diameter and an half.

Pyramid, from the Greek, *Pyr*, *Fire*, or *Flame*, this being pointed like that. It is a ſolid Body, whoſe Baſe is either ſquare, triangular, or polygonous, and which from that Baſe diminiſhes continually to its Vertex, or Top.

Pyleing, the Ground to Foundations.

Q U

Q*UARRY* (of Stone) a place whence Stones are dug out, or (of Glaſs) a piece of Glaſs cut in a Diamond form. Quarries of Glaſs are of two kinds, *viz.* ſquare and long; and theſe again are of different Sizes, as 8's, 10's, 12's, 15's, 18's, and 20's; that is, 8 Quarries of 8's, make a Foot of Glaſs, and ſo does 10 Quarries of 10's, 12 of 12's, *&c.* But all Quarries, of what Size ſoever, are cut of one ſort of Angle, for the ſquare Quarries, and another for the long Quarries; the acute Angle of the ſquare Quarries being ſeventy-ſeven Degrees and nineteen Minutes; and the acute Angle of the long Quarries, ſixty-ſeven Degrees and twenty-two Minutes.

Quarters, in Architecture, all thoſe ſlight upright pieces between the Punchins and Poſts, which ſerve to lathe upon, are called Quarters.

Quarter-Round, by this Name the Workmen call any Moulding, whoſe Contour is a Circle, or approaching to a Circle; uſing this Term, whereever the Architects uſe that of Egg, or *Ovolo*.

Quirk, in Architecture, ſignifies a piece taken out of any regular Ground-Plot, or Floor; as if the Ground-Plot were a ſquare, or an oblong, and a piece be taken out of one Corner of it, for a Court, or Yard, that piece ſo taken out, is called a Quirk.

Quoins, or *Coins*, the Corners of Brick, or Stone Walls: Alſo the Stones in the Angles of Buildings, whether plain, ruſtic, or otherwiſe.

Quadrells, a ſort of Artificial-Stones, (ſo called from their form, they being ſquare,) made of a chalky whitiſh, and pliable Earth, and dried in the Shade.

R A

R*AFTERS* are thoſe pieces of Timber, that (ſtanding by pairs, on the Raiſing) meet in an Angle, at the top, and compoſe the Roof of a Building.

Raiſer, a Board edge ways, under the foreſide of a Step.

Raiſing-pieces, are pieces that lie under the Beams upon Brick, or Timber, by the ſide of the Houſe.

Range, the ſide of any Work that runs ſtrait, without breaking in Angles, is ſaid to range, or run Range: Thus the Rails of one ſtrait ſide of Wainſcotting, is ſaid to run Range.

Repoſitory, a Store-houſe, or Place to keep Things in; more peculiarly by Architects 'tis uſed to ſignify ſuch Places as are built for the laying up of Rarities, either in Painting or other Arts.

Return, the ſide that falls away from the foreſide of any ſtrait Work, is called the Return.

Ridge, the meeting of the Rafters on the Top of the Houſe, is called the Ridge.

Roof, the covering of a Houſe; but the Word is uſed in Carpentry, for the Timber-work of the Covering.

Roſe, is an Ornament, cut in the Spaces, which are between the Modillions, under the Plat-Fonds of Cornices, and in the middle of each Face of the Abacus, in the *Corinthian* and *Compoſite* Capitals.

Ruſtick, a manner of Building, quite rude, rather in Imitation of Nature, than according to the Rules of Art.

S A

S*AGITTA*, in Italian, *Sagitta*, (an Arrow) ſignifies what we call the Key-piece of an Arch.

Salon, is a kind of Hall, in the middle of a Houſe, or at the head of a Gallery, or a large Apartment, which ought to have a *Symmetry* on all its ſides; and as its height uſually takes in two Stories with two Rows of Windows, the bottom of its Plat-Fond ought to be arched; as is practiſed in ſome of the Palaces in *Italy*.

Saffita, or rather *Soffita*, or *Soffit*, an Italian Word (from *Subfixum* in Latin) a ſort of Cieling. In ordinary Buildings, it is taken for the Boards over the tops of Windows, oppoſite to the Window-Boards at the Bottom. In great Edifices it ſignifies the Ceiling or Wainſcot of any Apartment formed by croſs Beams, or flying Cornices, and having the ſquare Pannels of its Compartments enriched with Sculpture, Painting, and Gilding, as we may obſerve in the Baſiliques and Palaces of *Italy*.

Sand, is a fine, hard, gravelly Earth, of great Uſe in Building, and other Works.

There are three Sorts of Sand diſtinguiſhed by the Places whence they are drawn, *viz.* Pit-Sand, River-Sand and Sea-Sand, and is a principal Ingredient in making Mortar.

Sawing, the Application of the Saw in dividing of Timber, *&c.* into Boards.

Scantling, the Size that any Timber is *deſigned* to be cut to.

Scenography, from the Greek *Skene*, a Tent, or Tabernacle; and *Grapho*, to draw, or deſcribe; is a Model, or Deſcription of the Front and Sides of a Houſe, or the Art of rightly contriving Draughts in Architecture.

Scima-Reverſa, an O. G. with the Hollow downwards. *Vide* O. G.

Scotia, a Member of Architecture; 'tis hollow like a Semicircle. It is particularly placed in the Baſes of Columns, between the Torus, and the Aſtragal, and ſometimes 'tis put under the Drip, in the Cornice of the *Doric* Order. *Scotia*, from the Greek *Skotos*, Darkneſs, ſignifies, ſays M. *Perrault*, a hollow obſcure Moulding, between the Torus of the Baſe of a Column.

Scribe, a Term uſed by Carpenters and Joiners, when they are to fit one ſide of a piece of Stuff, againſt the ſide of ſome other piece of Stuff, and the ſide of the piece they are to fit it to, is not regular.

Sculpture, the Art of Carving in Wood or Stone, *&c.*

Sewers, in Architecture, are Conduits, or Conveyances, for the Soilage and Filth of a Houſe.

Sells, in Architecture, are of two kinds, *viz.* Ground-Sells, which are the loweſt pieces of Timber, in a Timber building, on which the whole Superſtructure is erected. And Window-Sells, commonly called Window-Soils, which are the bottom pieces in a Window-Frame.

Shaky, or *Shaken*, ſuch Stuff as is cracked, either with the Heat of the Sun, or the Drought of the Wind, is called Shaky, or Shaken Stuff.

Shingles, are ſmall pieces of Wood, or quartered oaken Boards, ſawed to a certain ſcantling; but they are more uſually cleft to about an Inch thick at one end, and made like Wedges, about four or five Inches broad, and eight or nine, and in ſome places twelve Inches long. They are uſed to cover Houſes; but more commonly Churches and

Steeples with, inſtead of Tiles, or Slates.

Shingling, the laying on of Shingles.

Shoulder, among Carpenters is the Sides or Butments of a Tennon.

Skirting-Boards, the narrow Boards fitted round the under ſide of Wainſcot againſt the Floor.

Slabs, the out-ſide ſappy Planks, or Boards ſawn off from the ſides of Timber; alſo the foot-pace to a Chimney-piece is called a Slab.

Slating, is the covering of Houſes with Slate.

Sleeper, in a Roof, is the oblique Rafter that lies in a Gutter.

Sluces, Vents, or Drains for Water.

Solive, a *French* Word, ſignifies a Joiſt, Rafter, or piece of Wood, either ſlit or ſawed, wherewith the Builders lay their Ceilings.

Spira, is properly Latin for the fold of a Serpent laid at reſt, or the Coil of a Cable-rope, *&c.* In Architecture 'tis ſometimes uſed for the Baſe of a Column, this making a Figure not unlike thoſe.

Square, a certain Meaſure, made uſe of in meaſuring ſeveral Artificers Work, conſiſting of a hundred ſuperficial Feet.

Stairs, are of various Sorts, as Strait-Flyers, Square-Flyers, Triangular-Flyers, *French*-Flyers, Winding-Stairs, and Mixt-Stairs, for which ſee Part III.

Statues, are imboſſed Figures, either in Stone, Metal, or Wood, repreſenting ſome Perſon diſtinguiſhed by his Birth or Merit, *&c.* and either ſerving as an Ornament of a Palace, or expoſed in ſome public Place, to perpetuate the Memory of the Perſon it is intended to repreſent.

Stiles, in Joinery, the upright pieces that go from the bottom to the top in any Wainſcot, or the like.

Stillatory, the Room that a Still or Limbeck is ſet up in for diſtilling Strong-Waters, *&c.*

Stilobatum, the Body of the Pedeſtal of any Column.

Stone, is a hard, ſolid, mineral Body, neither fuſible nor malleable, formed in Succeſſion of Time in the Body of the Earth.

Stove, a hot Houſe, for preſerving *Exotick Plants*, alſo a *Kitchen Term* for a ſort of Furnace where they prepare *Ragouts*, &c.

Strait, a Term uſed by Bricklayers, it is half (or more, or leſs than half) a Tile in Breadth, and the whole Length: They are commonly uſed at the Gable-ends, where they are laid at every other Courſe, to cauſe the Tiles to break Joint, as they phraſe it, that is, that the Joints of one (Courſe) may not anſwer exactly to the Joints of the next Courſe, either above or below it.

Strings, are thoſe Timbers which ſupport the Steps of Wooden-Stairs.

Stuff, the Wood that Joiners work upon, they call, in general, *Stuff.*

Stylobatæ, the ſame as Pedeſtals, a Greek Word, from *Stylos*, a Pillar, and *Baſis*, the Baſe or Foot thereof.

Summer-Tree, a Beam, full of Mortiſes for the Ends of Joiſts to lie in.

Symmetry, is the Compariſon that runs between the Parts of a Building and the whole.

Syſtole, is that manner of placing Columns, where the ſpace between the two firſt conſiſts of two Diameters, or four Modules.

T A

T*ABERN*, a Cellar.

Talon, the ſame as Heel; a Moulding in Architecture.

Taper, all ſorts of Stuff, or Work, that is ſmaller at one end than the other, and diminiſhes gradually, from the biggeſt end is ſaid to be taper.

Tarrau, or *Tarras*, an open Walk, or Gallery, alſo a flat Roof on a Houſe; alſo a kind of a coarſe Plaiſter, durable in the Weather.

Taſſels, pieces of Timber that lie under the Ends of the Mantle-Tree.

Tennon, a ſquare end of a piece of Timber fitted into a Morteſs.

Tetraordon, a kind of Brick ſo called.

Thatching, is the covering of the Roof of a Houſe or Barn, with Straw or Reed.

Theatre, is a public Edifice or Place, whereon Plays or Shews are exhibited to the People; as in *Drury-Lane*, *Covent-Garden*, or *Lincoln*'s-*Inn-Fields* Theatres.

Thermes, or *Termes*, a French Word, from *Terminus*, the Roman God of Boundaries, or Land-Marks, which they uſed to repreſent in a human Figure with half a Body, as if it proceeded out of a Sheath, or Caſe. Thoſe they fixed in the Earth as Land-Marks. In Architecture they ſerve as a kind of Symbolical Column.

Thorough-Lighted, Rooms are ſaid to be thorough-lighted when they have Windows, at both ends.

Tiles, in Buildings, are a Sort of thin artificial Stones, uſed in the Roofs of Houſes, *&c.* but more properly they are a kind of fat clayey Earth, moulded together, and dried and burnt in a Kiln.

There are various kinds of Tiles, known by ſeveral Names, as, Plain, Thack, Ridge, Roof, Creaſe, Gutter, Pan, Crooked, Flemiſh, Corner, Hip, Dormar, Scallop, Aſtragal, Traverſe, Paving, and Dutch Tiles.

Timber, includes all kinds of Woods, felled and ſeaſoned, or thoſe kinds of Trees, which, when ſo prepared, are made Uſe of in Building by the *Carpenter*, *Joiner*, *Turner*, &c. and which chiefly are *Oak*, *Elm*, *Beech*, *Aſh*, *Firr*, which is alſo called *Deal*; there is alſo *Walnut-Tree*, *Cheſnut-Tree*, *Poplar*, *Aſpen*, *Alder*, *Lime-Tree*, &c. but theſe are not accounted Timber.

Torus, a large round Moulding, in the Baſes of Columns; the Word comes from the Latin *Torus*, a Bed; the Figure of this Moulding being not unlike that of the ſide of a Quill.

Tranſom, the piece that is framed a-croſs a double-light Window.

Traverſe, a Term in Joinery, ſignifying to plain a Board, (or the like) a-croſs the Grain.

Triglyph, a Term of Architecture, the Word is originally Greek, and ſignifies a hollow Graveling, like Furrows, or Gutters. In Architecture, Triglyphs, are thoſe kind of Stops, in the *Doric* Freeze, between the Metops.

Trim, when Workmen fit a piece into other Work, they ſay they Trim in a piece.

Trimmers, in Architecture, thoſe pieces of Timber framed to the Joiſt, againſt the ways for Chimnies and Well-holes for Stairs.

Trunk, from the Latin *Truncus*, ſignifies the Fuſt, or Shaft of a Column, and the Die of a Pedeſtal, and is alſo uſed for bringing down Water from the Houſe top.

Tuſk, a Bevel Shoulder, made to ſtrengthen the Tennon of the Joiſt, which is let into the Girder.

V A

V*ALLEYS*, the Gutters over the Sleepers, in the Roof of a Building.

Vault, is a piece of Maſonry, arched without ſide, and ſupported in the Air, by the artful placing of the Stones, which form it; its principal Uſe being for a Cover or Shelter; few *Houſes* in modern Buildings are without them.

Veſtible, among the Ancients, was a large open ſpace before the Door, or at the Entry of a Houſe, which they call *Atrium Populatum & Veſtibulum*, being dedicated, as *Martinus* tells us, to the Goddeſs *Veſta*; whence he will have the Word derived, *i. e. Veſtæ Stabulum*; it being uſual for People to ſtop here, before they went within Doors.

Under-Pinning, by this Term is meant the bringing it up with Stone or Brick under the Ground-Sells of a Building.

Volute, from *Volvo*, to fold, is one of the principal Ornaments of the *Ionic* and *Compoſite* Capitals, repreſenting a kind of Bark, wreathed, or twiſted into a ſpiral Scroll.

Urn, comes from the Latin, *Urna*, a Veſſel to draw Water in, and ſignifies a low wide Vaſe, ſerving as a crowning over Balluſtrades, and as an Attribute to Rivers, River Gods, &c. in the Grotto's and Fountains in Gardens.

Vouſſoirs, the Stones that form the Arch; a French Word.

W A

W*AINSCOT*, the pannelled Work round about the Walls of a Room.

Wainſcotting, the making and ſetting up of Wainſcot.

Walling, the making of Walls, of what kind ſoever, is called Walling.

Waſh-Houſe, a Room to waſh in.

Water-Table, in Stone, or Brick-Walls, is a ſort of Ledge, left out of the Wall, ſome eighteen or twenty Inches, more or leſs, above the Ground; at which place the Thickneſs of the Wall is abated, or taken in, on each Side, the Thickneſs of a Brick; in Brick-Walls, namely, two Inches and a Quarter; thereby leaving that Ledge, or Jutty, that is called a Water-Table.

Weather-Boarding, a Term in Carpentry, ſignifying the nailing up of Boards againſt Quarters.

Weather-Tiling, is the Tiling the upright-ſides of Houſes.

Well-Hole, the Space left in a Floor, for the Stairs to come up through.

Withs, theſe are uſed by Thatchers to bind the Thatching-Rod to the Rafters.

X Y

XYSTOS, among the ancient Greeks, was a Portico of uncommon length, either covered, or open, wherein the *Athletæ* uſed to exerciſe themſelves in running Races, and Wreſtling. The Word is derived from *Xythin*, *to poliſh*.

Z O

ZOCCOLO, the ſame as Plinth, it is an Italian Word, and ſignifies a ſort of Wooden Shoes, or Sandals, from the Latin *Soccus*, the Buſkins, wore by the ancient Actors. In Architecture, it is a ſquare Body, leſs in Height than Breadth, and placed under the Mouldings of the Baſes of Pedeſtals, *&c.* 'Tis called in Engliſh, *Socle*, or *Zocle*.

Zophorus, the ſame as Freeze, a large flat Member, which ſeparates the Architrave from the Cornice. It is derived from the Greek *Zoophoros*, (i. e.) *Animal-bearing*; it being uſual for Animals to be repreſented upon it.

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